FPC-3131 Series

Robust Box PC with Intel® Atom™ D2550 Platform

User's Manual

Version 1.0

P/N: 4012313100100P

2013.07

Revision History

Version	Date	Description
1.0	2013/07	initial release

Contents

Copyright Notice

The information in this document is subject to change without prior notice in order to improve the reliability, design and function. It does not represent a commitment on the part of the manufacturer.

Under no circumstances will the manufacturer be liable for any direct, indirect, special, incidental, or consequential damages arising from the use or inability to use the product or documentation, even if advised of the possibility of such damages.

Declaration of Conformity

CE

The CE symbol on your product indicates that it is in compliance with the directives of the Union European (EU). A Certificate of Compliance is available by contacting Technical Support.

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from ARBOR. Please contact your local supplier for ordering information.

> Warning
> This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC Class B

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1)This device may not cause harmful interference, and

(2)This device must accept any interference received, including interference that may cause undesired operation.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the

instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

RoHS

ARBOR Technology Corp. certifies that all components in its products are in compliance and conform to the European Union's Restriction of Use of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive 2002/95/EC.
The above mentioned directive was published on 2/13/2003. The main purpose of the directive is to prohibit the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE) in electrical and electronic products. Member states of the EU are to enforce by 7/1/2006.
ARBOR Technology Corp. hereby states that the listed products do not contain unintentional additions of lead, mercury, hex chrome, PBB or PBDB that exceed a maximum concentration value of 0.1% by weight or for cadmium exceed 0.01% by weight, per homogenous material. Homogenous material is defined as a substance or mixture of substances with uniform composition (such as solders, resins, plating, etc.). Lead-free solder is used for all terminations (Sn(96-96.5%), Ag(3.0-3.5%) and Cu(0.5%)).

SVHC / REACH

To minimize the environmental impact and take more responsibility to the earth we live, Arbor hereby confirms all products comply with the restriction of SVHC (Substances of Very High Concern) in (EC) 1907/2006 (REACH --Registration, Evaluation, Authorization, and Restriction of Chemicals) regulated by the European Union.
All substances listed in SVHC < 0.1 % by weight (1000 ppm)

Important Safety Instructions

Read these safety instructions carefully

1. Read all cautions and warnings on the equipment.
2. Place this equipment on a reliable surface when installing. Dropping it or letting it fall may cause damage
3. Make sure the correct voltage is connected to the equipment.
4. For pluggable equipment, the socket outlet should be near the equipment and should be easily accessible.
5. Keep this equipment away from humidity.
6. The openings on the enclosure are for air convection and protect the equipment from overheating. DO NOT COVER THE OPENINGS.
7. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
8. Never pour any liquid into opening. This may cause fire or electrical shock.
9. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
10. If one of the following situations arises, get the equipment checked by service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well, or you cannot get it to work according to the user's manual.
    e. The equipment has been dropped or damaged.
    f. The equipment has obvious signs of breakage.
11. Keep this User's Manual for later reference.

Warning

The Box PC and its components contain very delicately Integrated Circuits (IC). To protect the Box PC and its components against damage caused by static electricity, you should always follow the precautions below when handling it:

1. Disconnect your Box PC from the power source when you want to work on the inside.
2. Use a grounded wrist strap when handling computer components.
3. Place components on a grounded antistatic pad or on the bag that came with the Box PC, whenever components are separated from the system.

Replacing the Lithium Battery

Incorrect replacement of the lithium battery may lead to a risk of explosion.

The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer.

Do not throw lithium batteries into the trashcan. It must be disposed of in accordance with local regulations concerning special waste.

Technical Support

If you have any technical difficulties, please consult the user's manual first at: ftp://ftp.arbor.com.tw/pub/manual

Please do not hesitate to call or e-mail our customer service when you still cannot find out the answer.

http://www.arbor.com.tw
E-mail:info@arbor.com.tw

Warranty

This product is warranted to be in good working order for a period of one year from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it at no additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster.

Vendor assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, or inability to use this product. Vendor will not be liable for any claim made by any other related party.

Vendors disclaim all other warranties, either expressed or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose, with respect to the hardware, the accompanying product's manual(s) and written materials, and any accompanying hardware. This limited warranty gives you specific legal rights.

Return authorization must be obtained from the vendor before returned merchandise will be accepted. Authorization can be obtained by calling or faxing the vendor and requesting a Return Merchandise Authorization (RMA) number. Returned goods should always be accompanied by a clear problem description.

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Chapter 1

Introduction

1.1 The Product

The FPC-3131 is a modest box computer to feature the basic and essential features required for industrial field.

Loaded with soldered onboard Intel® Atom™ D2550 1.86GHz processor and chipset of Intel® NM10 PCH, the fanless computer consumes low power while delivering advanced graphics and intensive computing.

The book-sized computer comes in a small form factor, at only 252 x 199 x 33 mm (9.92" x 7.83" x 1.3"). It is highly portable and suitable for constraint space. The computer features one Mini-card socket for wireless or HSUPA module, one DB-44 pin connector for extensive serial ports, six USB2.0 ports, two LAN ports, one DVI-D and one DVI-I ports for video output, one CFast socket to expand storage and an audio line-out jack. These features make the computer optimal for digital signage, info kiosk, gaming, media server and industrial control.

Product Highlights

- Ultra Low Power and Fanless & Cable Less Design
- Wide Range DC Power Input (10 ~ 32V)
- Over-voltage and Reversed Power Input Protection
- Outside Accessible CFast and SIM Slots
- Dual DVI Port Output
- RS-485 Auto-flow Function
- Wide Operating Temperature (-20 ~ 70˚C)
- Easy Installation/Maintenance
- Intel® SSD Compatible

1.2 About This Manual

This manual is meant for experienced users and integrators with hardware knowledge of personal computers. If you are not sure about the description herein, consult your vendor before further handling.

We recommend you keep one copy of this manual for the quick reference for any necessary maintenance in the future. Thank you for choosing ARBOR products.

1.3 Specifications

System Kernel	
Processor	Soldered onboard Intel® Atom™ D2550 1.86GHz processor
Chipset	Intel® NM10 PCH
Graphics	Integrated Intel GMA 3650
System Memory	1 x 204-pin DDR3 SO-DIMM socket, supporting 800/1066MHz SDRAM up to 4GB
Serial ATA	1 x Serial ATA port with 300MB/s HDD transfer rate
Ethernet Controller	2 x Realtek 8111 Gigabit Ethernet controllers
Watchdog Timer	1 ~ 255 levels reset
I/O Ports	
Serial Port	2 x RS-232 ports/ 2 x RS-232/422/485 selectable ports with DB-44 pin connector
USB Port	6 x USB 2.0 ports
LAN	2 x RJ-45 ports for Gigabit Ethernet
Video Port	1 x DVI-I female connector for Digital Video Output
	1 x DVI-D female connector for Digital Video output
Digital I/O	1 x 6-bit digital I/O (3 in/3 out)
Audio	Line-out
Expansion Bus	1 x Mini-card slot interconnected with SIM card socket for optional WiFi or HSUPA module
	1 x SIM card socket
Storage	
Type	1 x 2.5” drive bay for HDD/SSD
	1 x CFast socket
Qualification	
Certification	CE, FCC Class B
Environmental	
Operating Temp.	-20 ~ 70°C (-4 ~ 158°F), ambient w/ air flow
Storage Temp.	-40 ~85 °C (-40 ~ 185°F)
Operating Humidity	10 ~ 95% @ 70°C (non-condensing)

Vibration	3 Grms/5 ~ 500 Hz/random operation
Shock	Operating 40G (11ms), Non-operating 80G with SSD/ CFast
Mechanical	
Construction	Aluminum alloy
Mounting	Wall-mount/VESA-mount/Din rail mounting
Weight	1.89 kg (4.16 lb) (Bare-bone)
Dimensions (W x D x H)	252 x 199 x 33 mm (9.92” x 7.83” x 1.3”)
OS Support	Windows XP Embedded / Windows XP Professional / Windows Embedded 7 Professional / Windows Embedded 7 Standard
Power Requirement	
Power Input	DC 10~32V input (w/ 3-pin DC input terminal block)
Power Consumption	Max. 30W

1.4 Inside the Package

Upon opening the package, carefully inspect the contents. If any of the items is missing or damaged, contact your local dealer or distributor. The package should contain the following items:

1 x FPC-3131 Embedded System

1 x Driver CD
1 x User’s Manual

1.5 Ordering Information

FPC-3131	Barebone system w/o storage device and memory

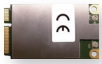
1.5.1 Optional Accessories

The following items are normally optional, but some vendors may include them as a standard package, or some vendors may not carry all the items.

PAC-P065W	19V/3.4A 65W AC/DC adapter kit	
VMK-3100	VESA mount kit	
CBL-7100-COM	4 x COM ports converter cable	
DRK-001	Din rail kit of FPC series	
WMK-3100	Wall-mount kit	

1.5.2 Configure-to-Order Service

Make the computer more tailored to your needs by selecting one or more components from the list below to be fabricated to the computer.

SSD-25040	Intel® 2.5” 40GB SATAII SSD kit	
HSPA-SI1400	HSUPA 3.75G module kit & internal wiring	
WIFI-IN1300	Intel® Centrino® Advanced-N 6205 WiFi module w/ 20cm internal wiring	
ANT-D11	1 x WiFi Dual-band 2.4G/5G antenna	
ANT-H11	1 x 2dBi HSUPA antenna	
2GB SO-DIMM	DDR3-1333 2GB SDRAM	
4GB SO-DIMM	DDR3-1333 4GB SDRAM	

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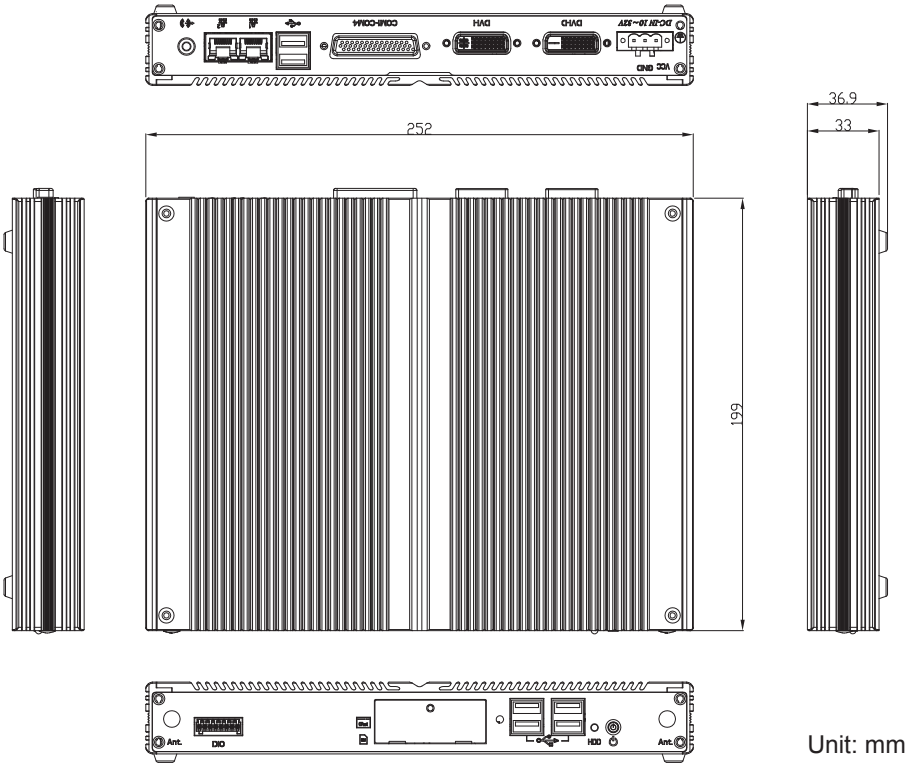
Chapter 2

Getting Started

2.1 Dimensions

The following illustration shows the dimension of FPC-3131, with the measurements in width, depth, and height called out.

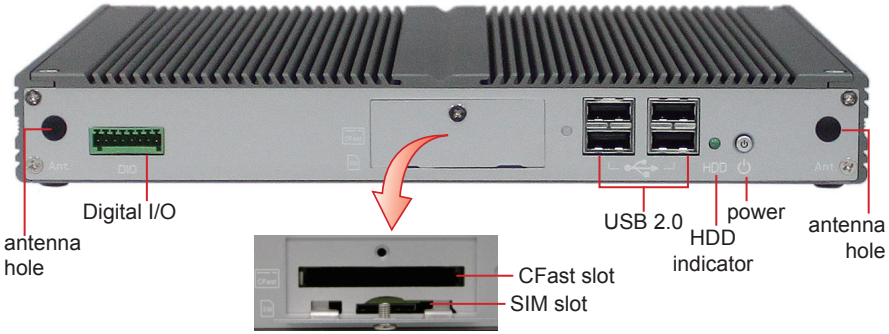


Unit: mm

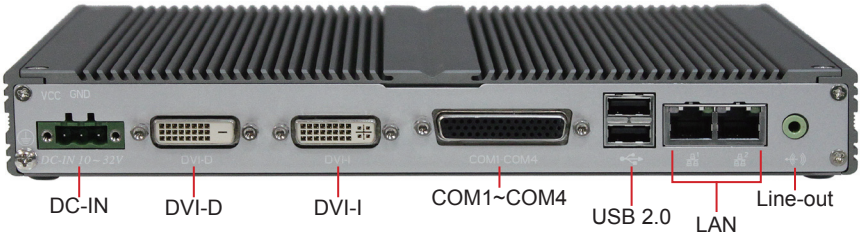
2.2 Take a Tour

The computer has some I/O ports, status LED light and controls on the front and rear panels. The following illustrations show all the components called out for FPC-3131.

2.2.1 Front View



2.2.2 Rear View



2.2.3 Side View

2.3. Driver Installation Notice

The FPC-3131 supports the operating systems of Windows 7 and XP. For these operating systems, find the necessary device drivers on the CD that comes with your purchase. For different operating systems, the installation of drivers may vary slightly, but generally they are similar. **DO** install **Chipset→Graphics** before the rest to prevent errors. The path to find the device drivers on CD:

Windows 7

Device	Driver Path
CHIPSET	CHIPSET\WIN7\32
GRAPHIC	GRAPHIC\WIN7\32
LAN	LAN\WIN7\32
AUDIO	AUDIO\WIN7\32

Windows XP

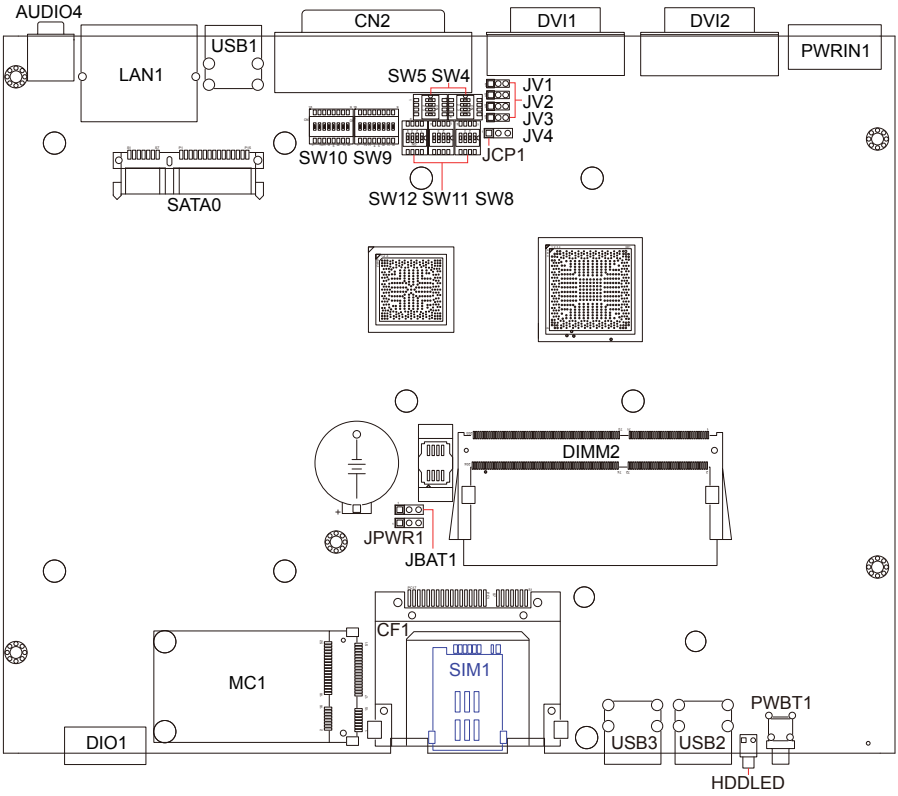
Device	Driver Path
CHIPSET	CHIPSET\XP
GRAPHIC	GRAPHIC\XP
LAN	LAN\XP\REALTEK_8111E_XP_32
AUDIO	AUDIO\XP

Chapter 3

System Configuration

3.1 Board Layout

The main board FMB-i2509 comes with some connectors to join devices and jumpers to alter hardware configuration. The following in this chapter will explicate each of these components one-by-one.



Note: SIM1 in blue is on bottom side.

3.2 Jumper and Connectors

3.2.1 Jumper

JBAT1

Function: clear CMOS setting

Jumper Type: onboard 2.54mm pitch 1x3-pin header

Setting:

Pin	Description	
1-2	keeps CMOS (default)	
2-3	clears CMOS	

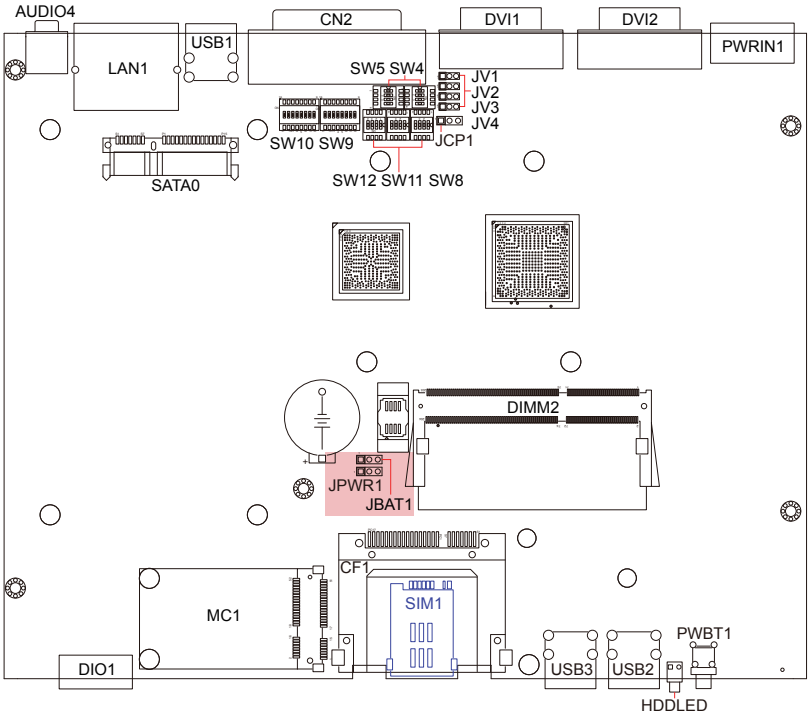
JPWR1

Function: AT/ATX power type selector

Jumper Type: onboard 2.54mm pitch 1x3-pin header

Setting:

Pin	Description	
1-2	AT mode	
2-3	ATX mode (default)	

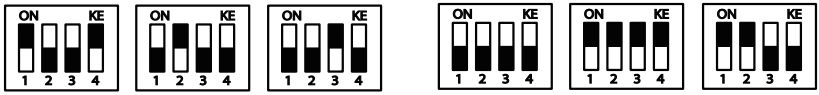


SW4/5, SW8/11, SW9/10

Function: RS-232/422/485 mode selectors for COM3~4

Setting: SW4, 8, 9 control COM3; SW5, 11, 10 control COM4. User must set the same group of switches to the same mode simultaneously.

Pin	SW4/5			SW8/11		
	RS-232 (default)	RS-422 mode	RS-485 mode	RS-232 (default)	RS-422 mode	RS-485 mode
1	ON	OFF	OFF	OFF	ON	ON
2	OFF	ON	OFF	OFF	ON	ON
3	OFF	OFF	ON	OFF	ON	OFF
4	ON	OFF	OFF	OFF	ON	OFF



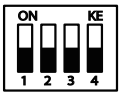
Pin	SW9/10	
	RS-232 mode (default)	RS-422/RS-485 mode
1	ON	OFF
2	ON	OFF
3	ON	OFF
4	ON	OFF
5	ON	OFF
6	ON	OFF
7	ON	OFF
8	ON	OFF

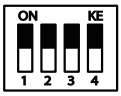
SW12

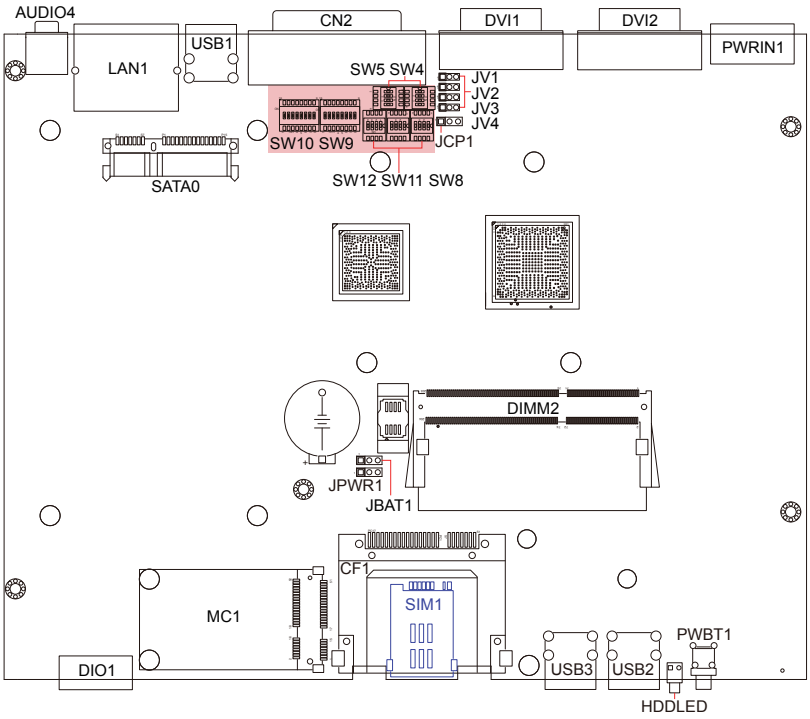
Function: RS-422/485 termination

Setting:

Pin	Without 120 OHM (default)	With 120 OHM
1	OFF	ON
2	OFF	ON
3	OFF	ON
4	OFF	ON







JCP1

Function: COM Port power selector

Jumper Type: onboard 2.54mm pitch 1x3-pin header

Setting:

Pin	Description	
1-2	5V (default)	
2-3	12V	

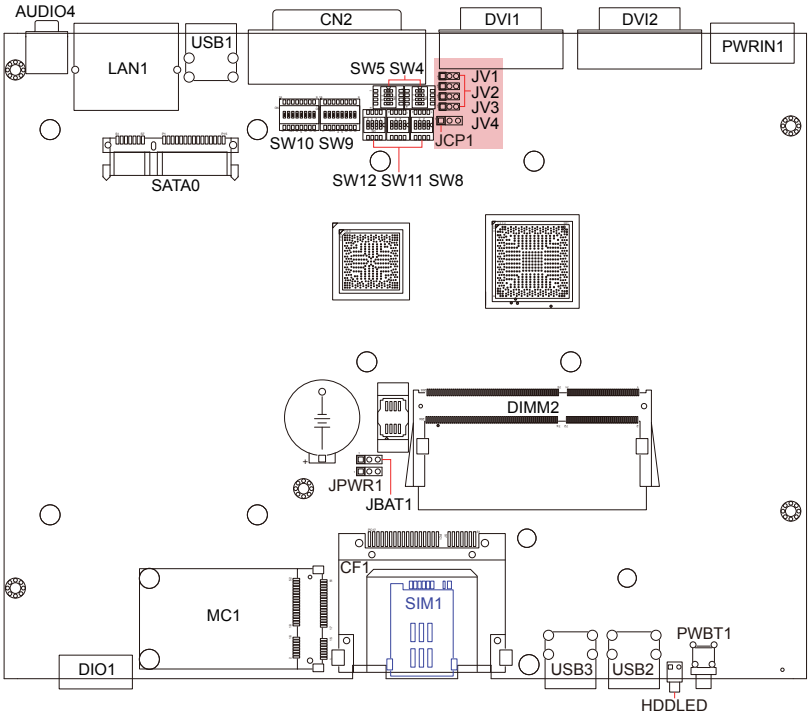
JV1~4

Function: RI/5V/12V (Pin 9) selectors for COM1~4

Jumper Type: onboard 2.54mm pitch 1x3-pin header

Setting: JV1~4 correspond to COM1~4 respectively.

Pin	Description	
1-2	normal (default)	
2-3	COMPOWER	

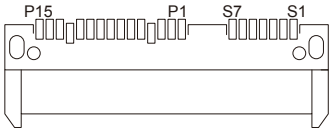


3.2.2 Connectors

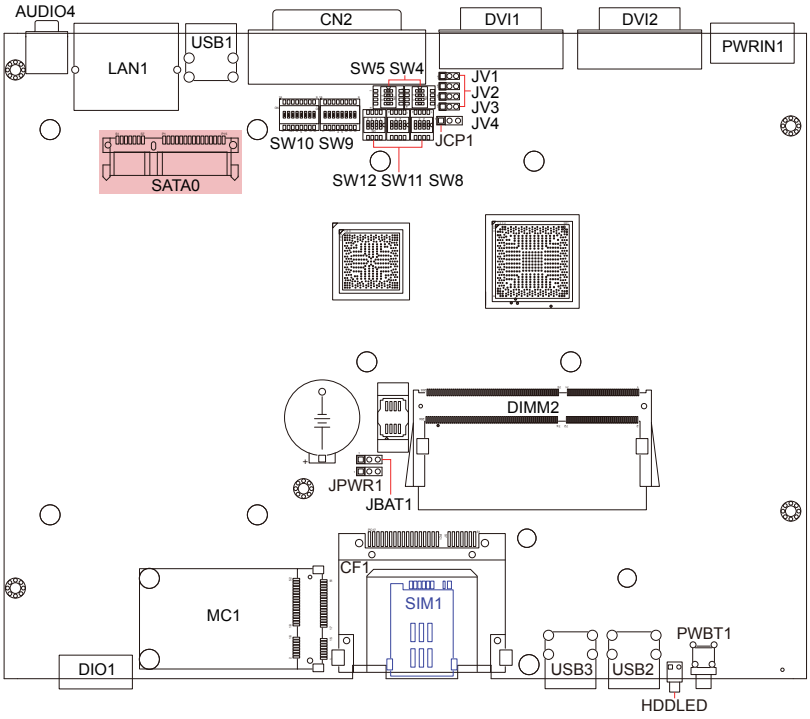
SATA0

Function: S-ATA1 connector

Connector Type: SATA port with data + power vertical connector (7+15pin)



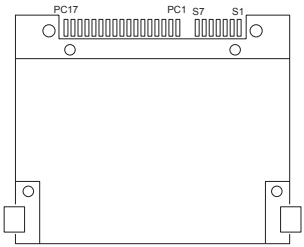
Pin	Description	Pin	Description	Pin	Description
S1	GND	P1	+3.3V	P8	+5VS
S2	TX+	P2	+3.3V	P9	+5VS
S3	TX-	P3	+3.3V	P10	GND
S4	GND	P4	GND	P11	NC
S5	RX-	P5	GND	P12	GND
S6	RX+	P6	GND	P13	NC
S7	GND	P7	+V5S	P14	NC
				P15	NC



CF1

Function: CFast Card Type I/II socket

Connector Type: 7+17-pin CFast Card connector consisting of a SATA compatible 7-pin signal connector and a 17-pin power control connector.

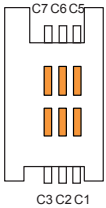


Pin	Segment	Name	Type	Description
S1	SATA	SGND	Signal GND	Ground for signal integrity
S2	SATA	A+	SATA Differential	Signal Pair A
S3	SATA	A-	SATA Differential	
S4	SATA	SGND	Signal GND	Ground for signal integrity
S5	SATA	B-	SATA Differential	Signal Pair A
S6	SATA	B+	SATA Differential	
S7	SATA	SGND	Signal GND	Ground for signal integrity
	Key			
	Key			
PC1	PWR/CTL	CDI	CMOS Input	Card Detect In
PC2	PWR/CTL	GND	Device GND	
PC3	PWR/CTL	TBD	TBD	
PC4	PWR/CTL	TBD	TBD	
PC5	PWR/CTL	TBD	TBD	
PC6	PWR/CTL	TBD	TBD	
PC7	PWR/CTL	GND	Device GND	
PC8	PWR/CTL	LED1	LED Output	LED Output
PC9	PWR/CTL	LED2	LED Output	LED Output
PC10	PWR/CTL	IO1	CMOS Input/Output	Reserved Input/Output
PC11	PWR/CTL	IO2	CMOS Input/Output	Reserved Input/Output
PC12	PWR/CTL	IO3	CMOS Input/Output	Reserved Input/Output
PC13	PWR/CTL	PWR	3.3V	Device Power (3.3V)
PC14	PWR/CTL	PWR	3.3V	Device Power (3.3V)
PC15	PWR/CTL	PGND	Device GND	Device Ground
PC16	PWR/CTL	PGND	Device GND	Device Ground
PC17	PWR/CTL	CDO	CMOS Output	Card Detect Out

SIM1

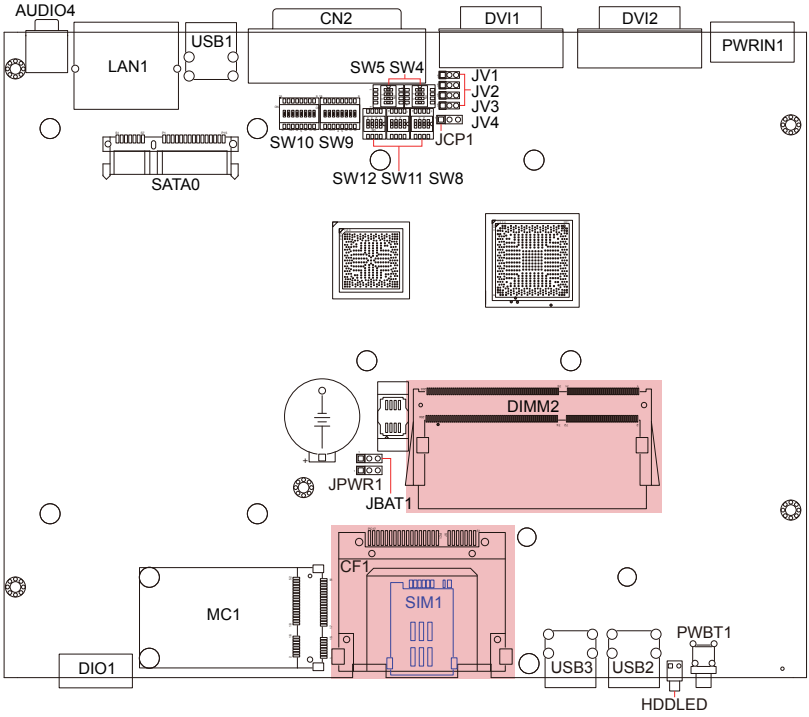
Function: SIM card holder with a hinged cover

Pin	Description
C1	VCC
C2	RST
C3	CLK
C5	GND
C6	VPP
C7	I/O



DIMM2

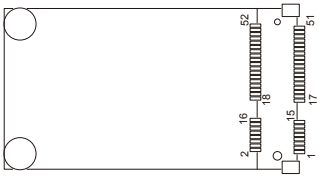
Function: 204-Pin DDR3 SO-DIMM socket



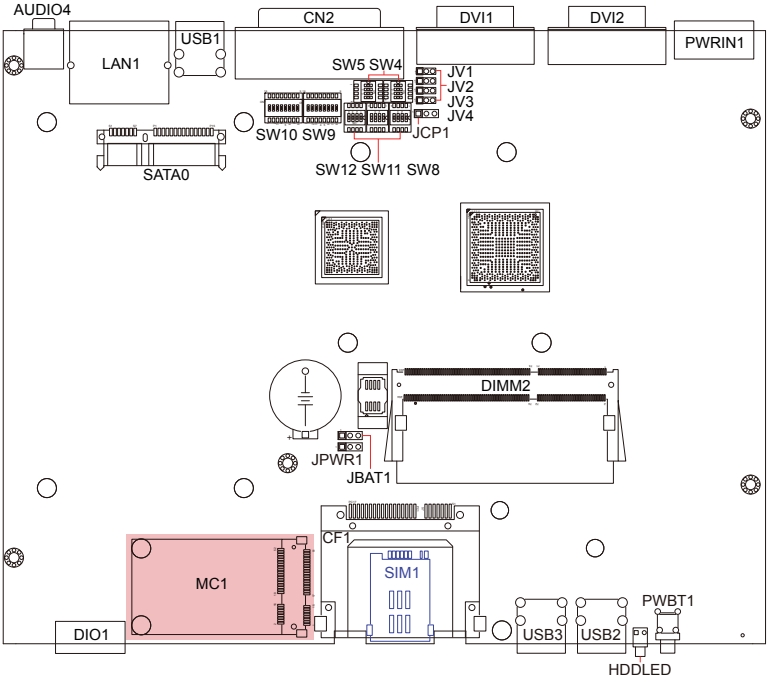
MC1

Function: PCI Express MiniCard socket

Connector Type: onboard 0.8mm pitch 52-pin edge card connector



Pin	Desc.	Pin	Desc.	Pin	Desc.	Pin	Desc.
1	Wake	14	UIM_RESET	27	GND	40	GND
2	+3.3V	15	GND	28	+1.5V	41	+3.3V
3	COEX1	16	UIM_VPP	29	GND	42	LED_WWAN#
4	GND	17	UIM_C8/Reserved	30	SMB_CLK	43	GND
5	COEX2	18	GND	31	PETn0	44	LED_WLAN#
6	+1.5V	19	UIM_C4/Reserved	32	SMB_DATA	45	Reserved
7	CLKREQ#	20	W_Disable#	33	PETp0	46	LED_WPAN#
8	UIM_PWR	21	GND	34	GND	47	Reserved
9	GND	22	PERST#	35	GND	48	+1.5V
10	UIM_DATA	23	PERn0	36	USB_D-	49	Reserved
11	REFCLK-	24	+3.3V	37	GND	50	GND
12	UIM_CLK	25	PERp0	38	USB_D+	51	Reserved
13	REFCLK+	26	GND	39	+3.3V	52	+3.3V

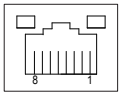


LAN1

Function: RJ-45 Ethernet connectors

Connector Type: 10/100/1000Mbps Fast Ethernet

Pin	Description
1	MDI0
2	MDI0#
3	MDI1
4	MDI1#
5	MDI2
6	MDI2#
7	MDI3
8	MDI3#



AUDIO4

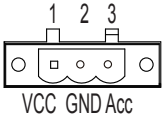
Function: audio output

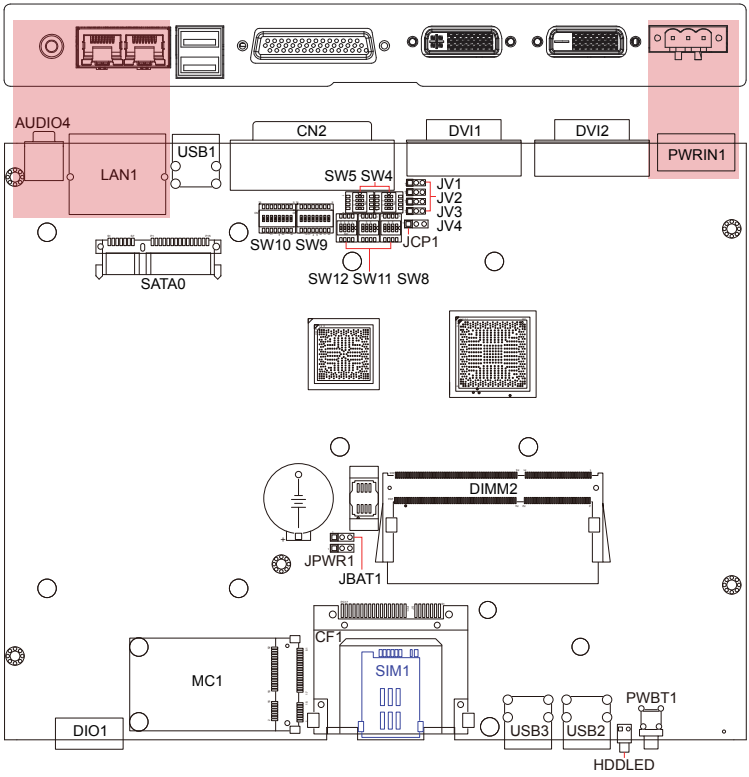
Connector Type: 3.5φ green audio jack w/ shield

PWRIN1

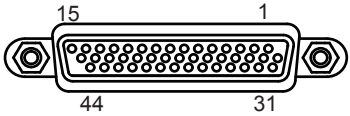
Function: DC adapter power input

Pin	Description
1	VCC 9~36V
2	GND
3	ACC





CN2 (COM1 ~ COM4)

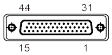


Function:
RS-232 (COM1~2); RS-232/422/485 (COM3~4)

Connector Type: DB-44 female connector

Pin1~9 define and correspond to COM1's Pin1~9 respectively; Pin11~19 define COM2's Pin1~9; Pin21~29 define COM3's Pin1~9; Pin31~39 define COM4's Pin1~9. COM1~2 do not support RS-422/485 modes. That is to say, the pin definition of RS-422 & RS-485 isn't applicable to Pin1~9 & Pin11~19.

Pin				RS-232	RS-422	RS-485	Pin				RS-232	RS-422	RS-485
1	11	21	31	DCD	Tx-	L-	2	12	22	32	RXD	Tx+	L+
3	13	23	33	TXD	Rx+	N/C	4	14	24	34	DTR	Rx-	N/C
5	15	25	35	GND	N/C	N/C	6	16	26	36	DSR	N/C	N/C
7	17	27	37	RTS	N/C	N/C	8	18	28	38	CTS	N/C	N/C
9	19	29	39	RI	N/C	N/C	10	20	30	40	N/C	N/C	N/C
41	42	43	44	N/C	N/C	N/C							



DB-44 female connector

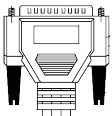
CBL-7100-COM (optional)

Function: COM converter cable

Type: 1 to 5 COM converter cable (4 x DB9 male and 1 x DB9 female connectors)

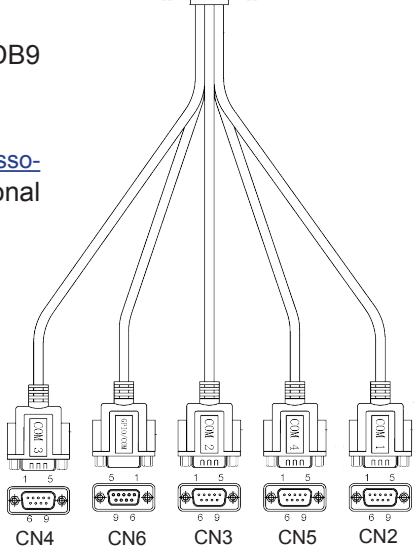
COM1~4 correspond to CN2~CN5 on DB9 cable controller. CN6 is unused.

Note: See Section 1.5.1 Optional Accessories on page 5 and contact your regional dealer to order the cable if necessary.



CBL-7100-COM

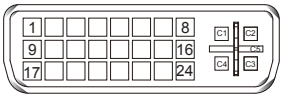
CBL-7100-COM
4 x COM ports converter cable



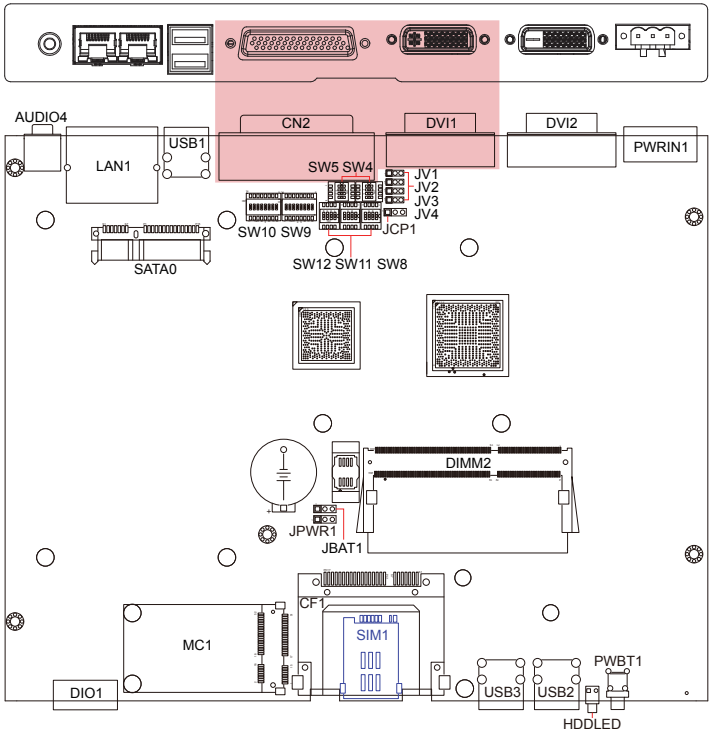
DVI1

Function: DVI-I display connector

Connector Type: 29-pin DIP-type female connector



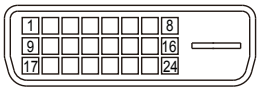
Pin	Description	Pin	Description	Pin	Description
1	T.M.D.S DATA 2-	11	T.M.D.S DATA 1/3 SHIELD	21	T.M.D.S DATA 5+
2	T.M.D.S DATA 2+	12	T.M.D.S DATA 3-	22	T.M.D.S CLOCK SHIELD
3	T.M.D.S DATA 2/4 SHIELD	13	T.M.D.S DATA 3+	23	T.M.D.S CLOCK+
4	T.M.D.S DATA 4-	14	+5V Power	24	T.M.D.S CLOCK-
5	T.M.D.S DATA 4+	15	GND	C1	ANALOG RED
6	DDC CLOCK	16	HOT PLUG DETECT	C2	ANALOG GREEN
7	DDC DATA	17	T.M.D.S DATA 0-	C3	ANALOG BLUE
8	ANALOG VERT. SYNC	18	T.M.D.S DATA 0+	C4	ANALOG HORZ SYNC
9	T.M.D.S DATA 1-	19	T.M.D.S DATA 0/5 SHIELD	C5	ANALOG GROUND
10	T.M.D.S DATA 1+	20	T.M.D.S DATA 5-		



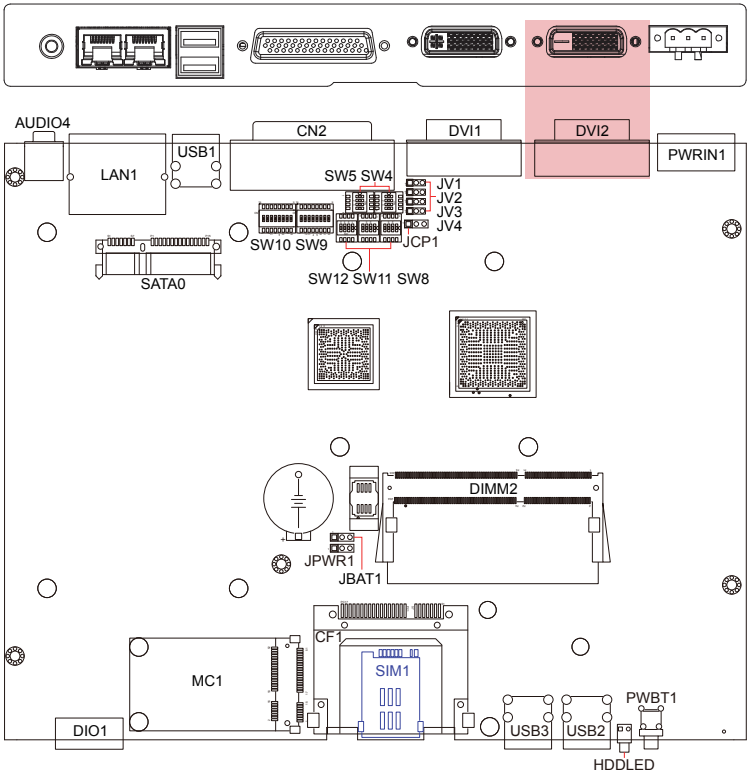
DVI2

Function: DVI-D display connector

Connector Type: 24-pin DIP-type female connector



Pin	Description	Pin	Description	Pin	Description
1	TMDS DATA2-	9	TMDS DATA1-	17	TMDS DATA0-
2	TMDS DATA2+	10	TMDS DATA1+	18	TMDS DATA0+
3	TMDS DATA2/4 shield	11	TMDS DATA1/3 shield	19	TMDS DATA0/5 shield
4	(NC) TMDS DATA4-	12	(NC) TMDS DATA3-	20	(NC) TMDS DATA5-
5	(NC) TMDS DATA4+	13	(NC) TMDS DATA3+	21	(NC) TMDS DATA5+
6	DDC Clock	14	5V	22	TMDS CLK shield
7	DDC Data	15	Ground	23	TMDS CLK-
8	(NC) CRT Vsync	16	Hot Plug Detected	24	TMDS CLK+



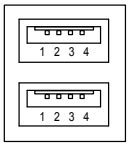
USB1~3

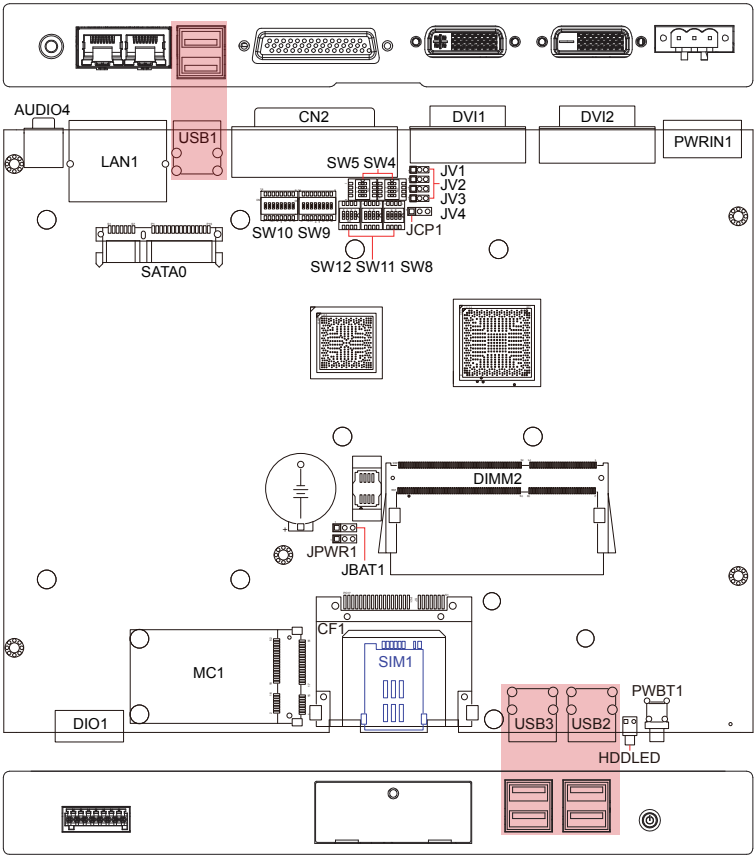
Function: USB2.0 Port 0~5

Connector Type: double stack USB2.0 type A connector

USB1 controls USB2.0 Port 0/1; USB2 controls USB2.0 Port 2/3; USB3 controls USB2.0 Port 4/5.

Pin	Description
1	5V
2	USB D-
3	USB D+
4	GND



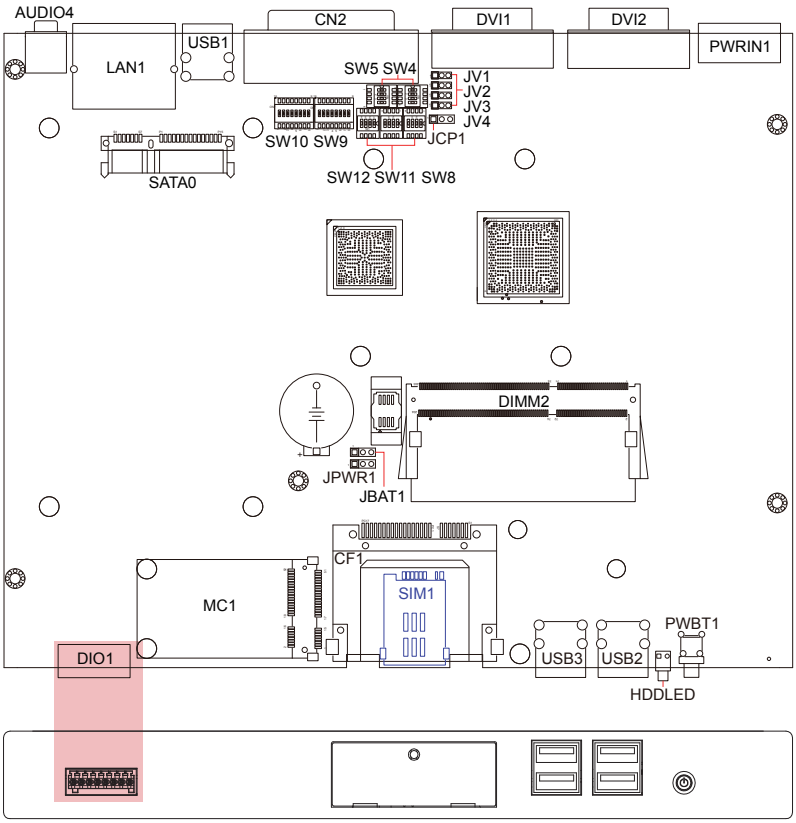


DIO

Function: 6-bit digital I/O connector (3 in/3 out)

Connector Type: onboard 2.54mm pitch 1x8-pin header

Pin	Description	Pin	Description
1	DIO0	5	DIO4
2	DIO1	6	DIO5
3	DIO2	7	+V5S
4	DIO3	8	GND



Chapter 4

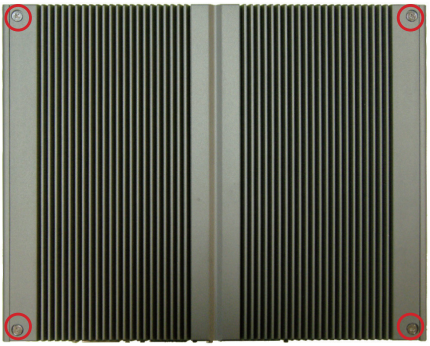
Installation and Maintenance

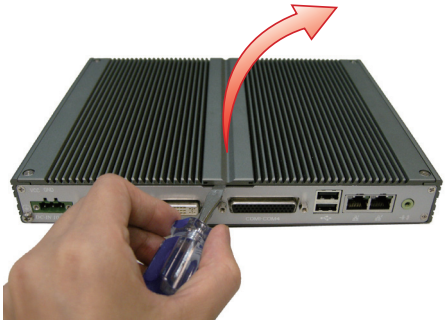
4.1 Install Hardware

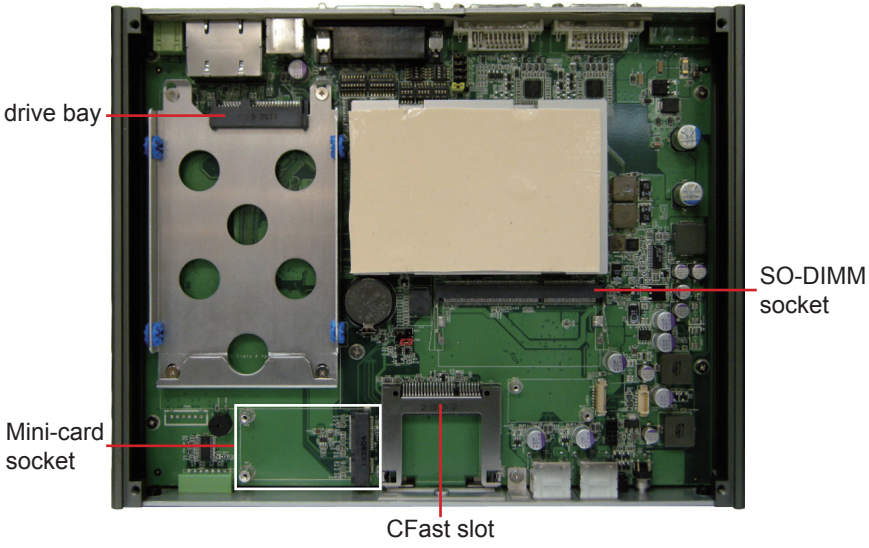
FPC-3131 is constructed based on modular design to make it easy for users to add hardware or to maintain the computer. The following sections will guide you through simple hardware installations.

4.1.1 Remove Top Cover

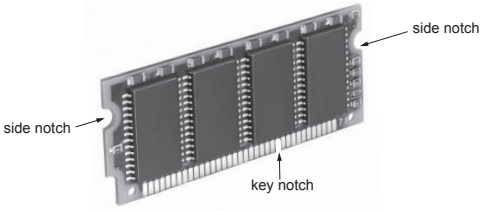
Turn off the computer. Unscrew the screws securing the top cover with cross-head screwdriver. Retain them safely for later use, so do other components we are going to remove. And then, unclinch top cover with tool as illustration. Take a look at its inside.







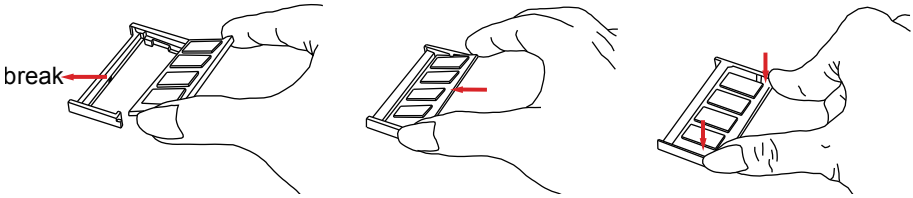
4.1.2 Install Memory Module



The main board has one dual inline memory module (DIMM) socket. Load the computer with a memory module of higher capacity to make programs run faster. The memory module for the computer's SO-DIMM socket should be a 204-pin DDR3 with a "key notch" off the centre among the pins. There are another two notches at left and right sides of the memory module to help fix the module in the socket.

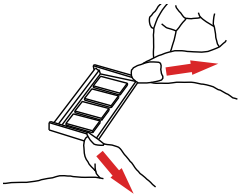
To install the DDR3 memory module:

1. Find the SO-DIMM socket on the board. The SO-DIMM socket is horizontal type, and it has two spring-loaded locks to fix the memory module.
2. Confront the memory module's edge with the SO-DIMM connector. Align the memory module's key notch with the break on the SO-DIMM socket. Fully plug the memory module obliquely until it cannot be plugged any more.
3. Press down the memory module until it gets auto-locked in place.



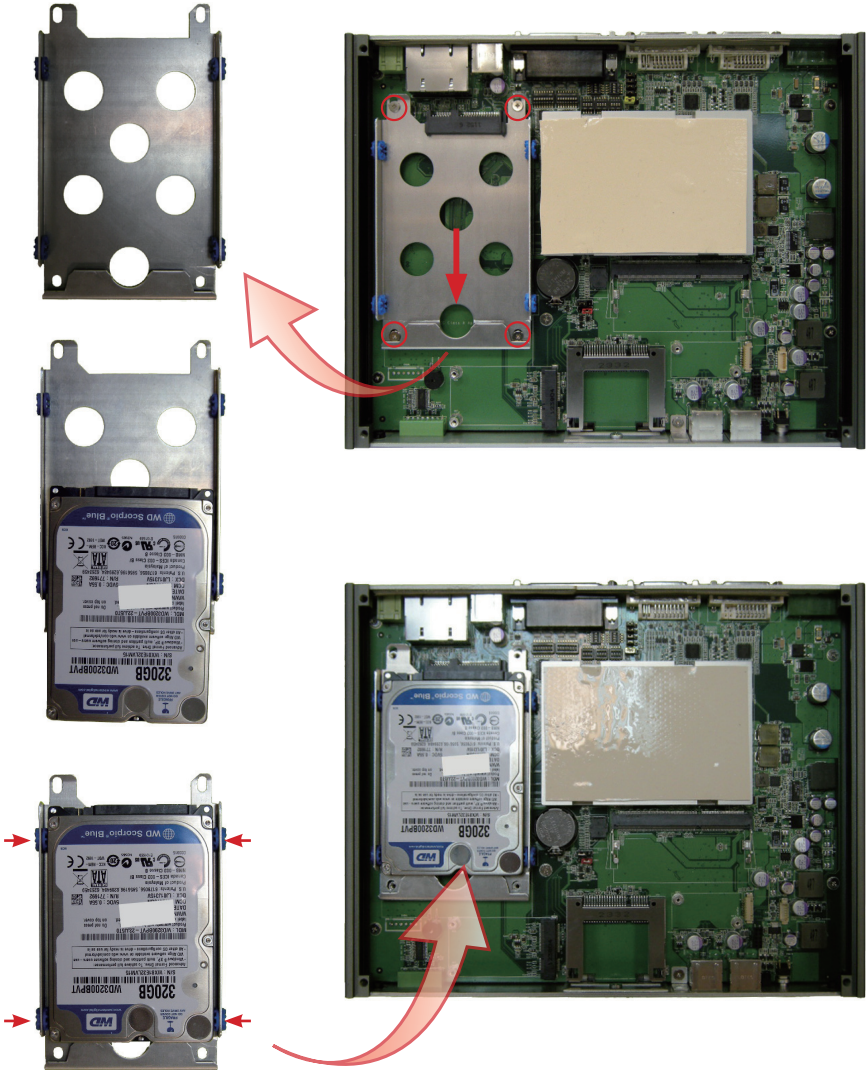
To uninstall the DDR3 memory module:

Press spring-loaded locks at corners to right and left ways. Remove the memory module.



4.1.3 Install HDD or SSD

1. Find HDD bracket on main board. Unscrew its four corners where red circles locate. Carefully draw out the bracket as arrow directs.
2. Mount HDD on bracket and lock it.
3. Fully insert the bracket into driver bay and secure its corners.



4.1.4 Install WiFi or HSUPA Modules (optional)

The computer also comes with a Mini-card socket for WiFi (**WIFI-IN1300**) or HSUPA (**HSPA-SI1400**) module. See Section 1.5.1 Optional Accessories on page 5 and contact your regional dealer to order these modules.

HSPA-SI1400
HSUPA 3.75G module kit & internal wiring

WIFI-IN1300
Intel® Centrino® Advanced-N 6205 WiFi module w/ 20cm internal wiring

See Appendix C: HSUPA or WiFi Module Hardware Installation on page 65 & Appendix D: HSUPA or WiFi Module Software & Application Installation on page 69 to know how to install the hardware and software for both modules.

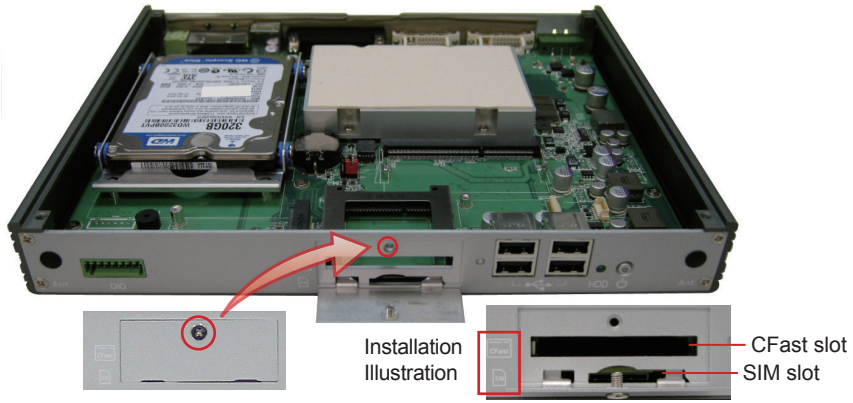
4.1.5 Install SIM or CFast Card

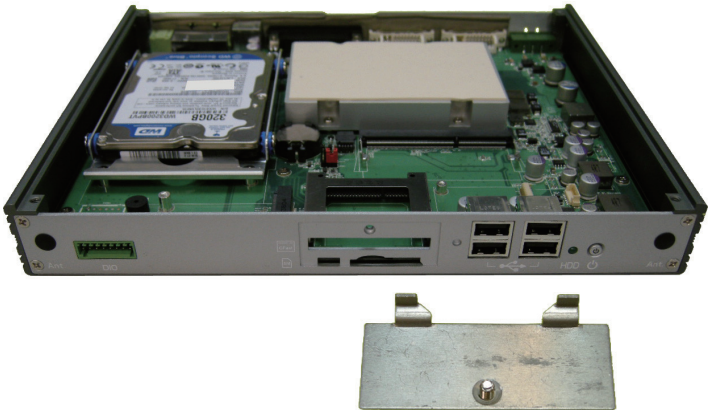
The computer supports a CFast card for storage and a SIM card for 3G networking. Two outside-accessible slots are featured for the installation of a CFast card and a SIM card. Follow through the guide below to install them to the computer.

Note:

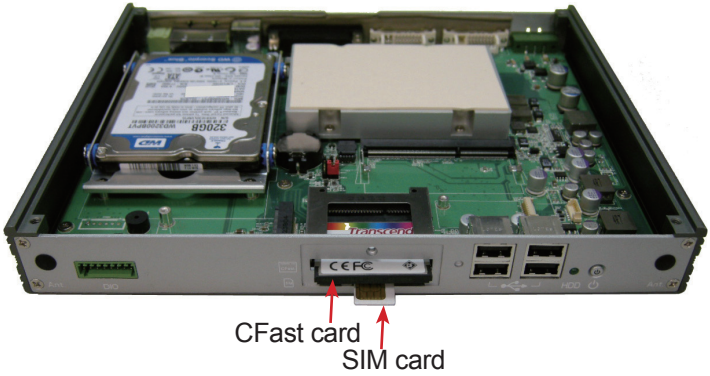
a. Be sure to turn off the computer before installing or un-installing the CFast card in case the OS is installed on the card.
b. To make use of a SIM card for 3G networking, a 3G module is also needed on the computer, see Appendix C: HSUPA or WiFi Module Hardware Installation on page 65 to install the 3G module **HSPA-SI1400**.

1. Find the CFast/SIM card door on the front panel. Use a crosshead screwdriver (#1 tip) to unscrew the door. Once the screw is removed, the card door can be opened and taken off. Save these components for later use.

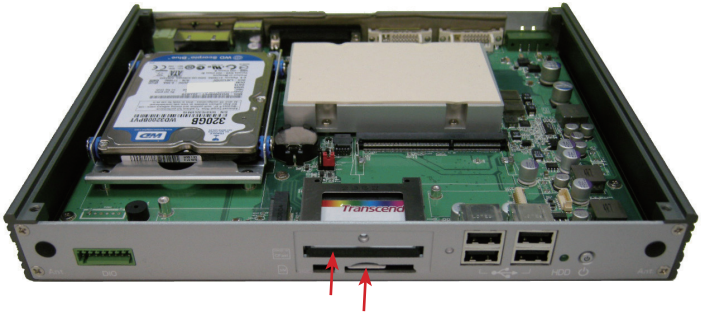




2. Push the CFast/SIM card into their slots to the end according to installation illustration beside slots. Close the card door and secure the screw.



3. To uninstall the CFast/SIM card, just push inwardly to eject them.



4.2 Mount the Computer

Integrate the computer to where it works by mounting it to a wall in the surroundings or to the rear of a display monitor or to DIN rail, which relies on VMK-3100, DRK-001 or WMK-3100 in optional accessories list.

VMK-3100
VESA mount kit

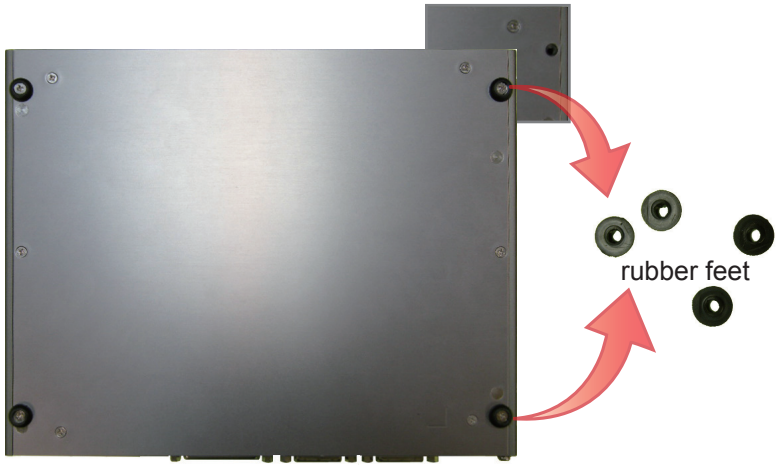
DRK-001
Din rail kit of FPC series

WMK-3100
Wall-mount kit

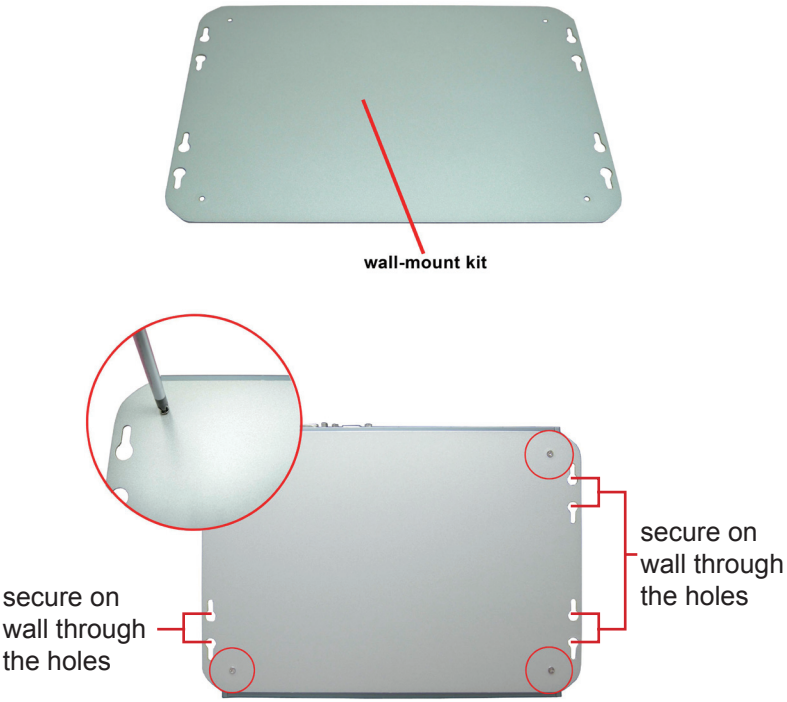
Follow next three sections to integrate the computer to everywhere.

4.2.1 Wall-Mount (optional)

1. Place the box PC upside down on a flat surface and locate the 4 rubber foot screws. Unscrew them and separate the screws from the rubber feet. Pull off rubber feet, too.



2. Use the same screws to secure WMK-1300 to the box PC. Fix FPC-3131 on wall through the holes at both sides.



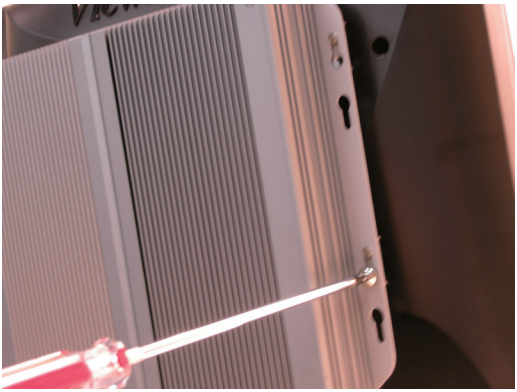
4.2.2 VESA-Mount (optional)

FPC-3131 can be mounted to LCD monitor's rear side that is VESA 100 compliant. Follow these steps:

1. Locate the VESA-compliant screw holes at the rear side of a LCD monitor.

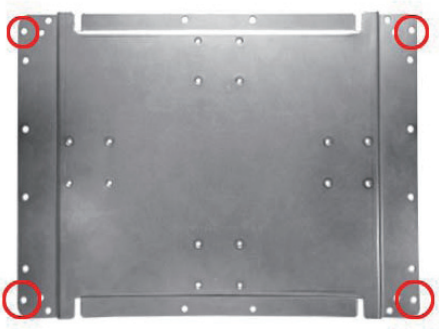
2. Secure VMK-3100 firmly to the monitor.

3. Hang FPC-3131 mounted with WMK-3100 (instructed in last section) on VMK-3100. Secure the box PC to VESA bracket as below.

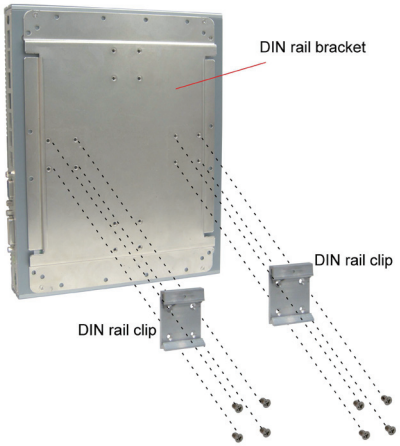


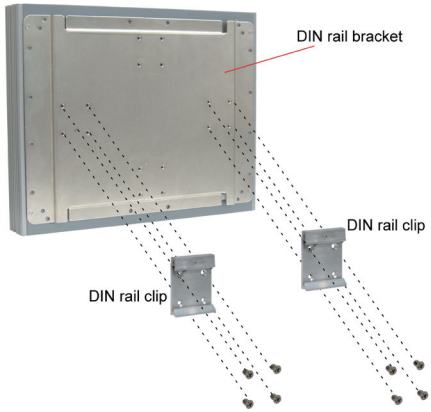
4.2.3 DIN Rail (optional)

1. Remove the box PC's rubber feet as described in Section 4.2.1 Wall-Mount (optional) on page 33. Align the screw holes of DIN rail bracket covered in DRK-001 with the ones on the bottom side of FPC-3131. Secure the bracket to FPC-3131.

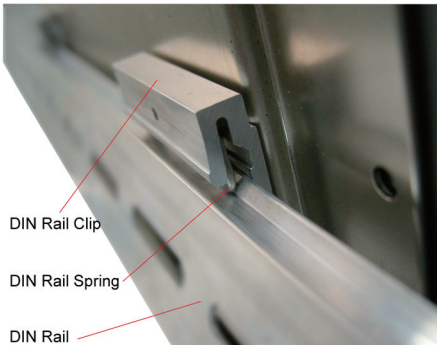


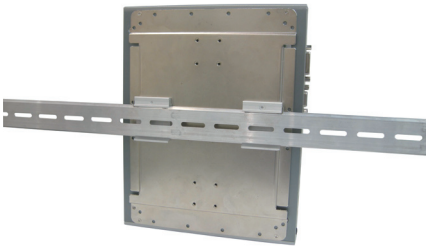
2. Mount the box PC on a DIN rail in the horizontal or vertical direction. For veritcal direction, secure two DIN rail clips to the DIN rail bracket as left picture. For horizontal direction, as right picture.



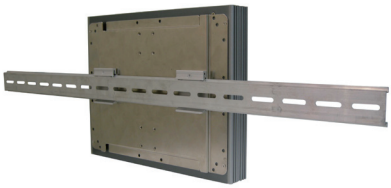


2. Meet DIN rail clip with DIN rail itself. Hook DIN rail spring on one edge of DIN rail and press the box PC into DIN rail until it's fixed firmly.





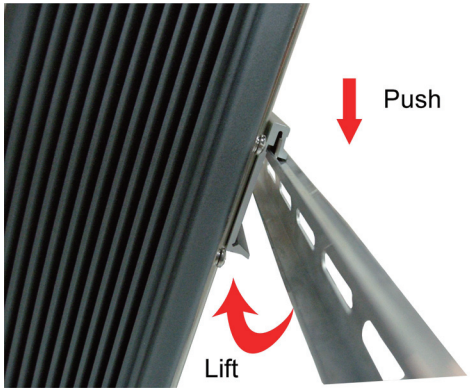
vertical direction



horizontal direction

Remove the Box PC from DIN Rail

Make sure power is off, and disconnect all cables from the computer. Carefully hold the box PC and push DIN rail spring downwards. As clip releases, lift the box PC off DIN rail.



4.3 Ground the Box PC

Follow the instructions below to ground the box PC on the ground. Make sure to follow any grounding requirements at your site.

> ⚠ **Warning** Whenever installing the unit, the ground connection must always be made first of all and disconnected last.

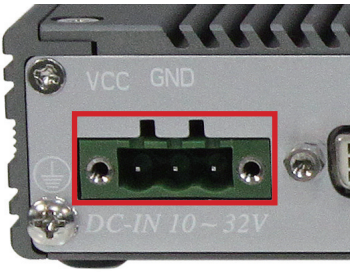
1. See the picture above. Remove the ground screw from the bottom-left corner of rear panel.
2. Attach the ground wire to the rear panel with the same screw.

4.4 Wire the DC-Input Power Source

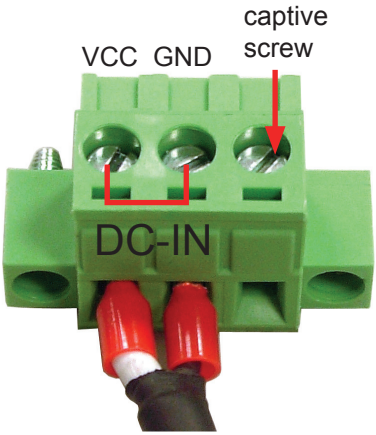
> **Warning** Only trained and qualified personnel are allowed to install or replace this equipment.

Follow the instructions below for connecting the computer to a DC-input power source.

1. Before wiring, make sure the power source is disconnected.
2. Find the terminal block in the accessory box.
3. Use the wire-stripping tool to strip a short insulation segment from the output wires of the DC power source.
4. Identify the positive and negative feed positions for the terminal block connection. See the symbols printed on the rear panel indicating the polarities and DC-input power range in voltages.
5. Insert the exposed wires into the terminal block plugs. Only wires with insulation should extend from the terminal block plugs. Note that the polarities between the wires and the terminal block plugs must be VCC to VCC and GND to GND.
6. Use a slotted screwdriver to tighten the captive screws. Plug the terminal block firmly, which wired, into the receptacle on the rear panel.



receptacle



terminal block

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Chapter 5

BIOS

The BIOS Setup utility for the computer is featured by American Megatrends Inc to configure the system settings stored in the system's BIOS ROM. The BIOS is activated once the computer powers on.

To enter the BIOS Setup utility, keep hitting the "Delete" key upon powering on the computer.

This BIOS Setup utility is updated from time to time to improve system performance and hence the screenshots hereinafter may not fully comply with what you actually have onscreen.

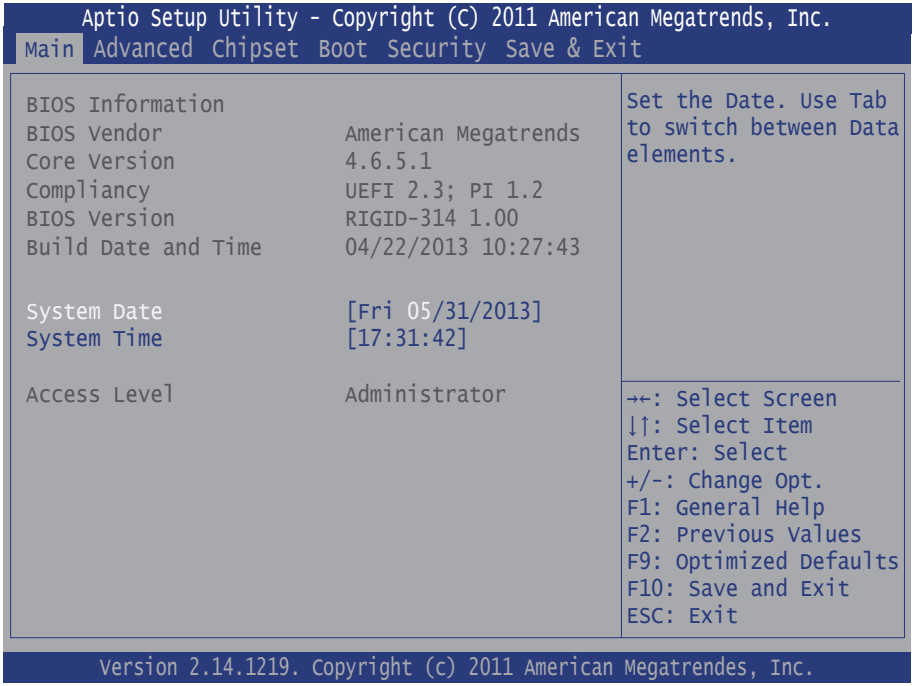
Key Commands

The BIOS Setup utility relies on a keyboard to receive user's instructions. Hit the following keys to navigate within the utility and configure the utility.

Keystroke	Function
◄ ►	Move to highlight a particular configuration screen from the top menu bar / Move to highlight items on the screen
▼ ▲	Move to highlight previous/next item
Enter	Select and access a setup item/field
Esc	On the Main Menu – Quit the setup and not save changes into CMOS (a message screen will display and ask you to select "OK" or "Cancel" for exiting and discarding changes. Use "←" and "→" to select and press "Enter" to confirm) On the Sub Menu – Exit current page and return to main menu
Page Up / +	Increase the numeric value on a selected setup item / make change
Page Down -	Decrease the numeric value on a selected setup item / make change
F1	Activate "General Help" screen
F10	Save the changes that have been made in the setup and exit. (a message screen will display and ask you to select "OK" or "Cancel" for exiting and saving changes. Use "←" and "→" to select and press "Enter" to confirm)

5.1 Main

The **Main** menu features the settings of **System Date** and **System Time** and displays some BIOS info and system info.

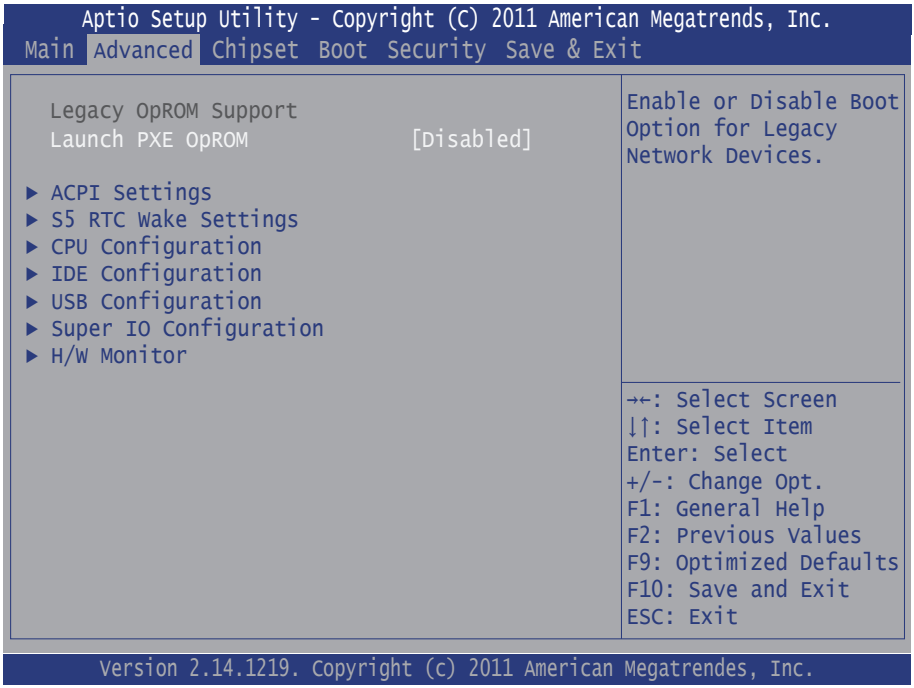


Info	Description
BIOS Information	
BIOS Vendor	displays vendor name
Core Version	displays current core version information
Compliancy	displays compliant format
BIOS Version	displays current BIOS version information
Build Date and Time	the date that the BIOS version was made/updated
System Date	Set the system date. Note that the 'Day' automatically changes when you set the date. ► The date format is: **Day:** Sun to Sat **Month:** 1 to 12 **Date:** 1 to 31 **Year:** 1998 to 2099

System Time	Set the system time. ► The time format is: **Hour:** 00 to 23 **Minute:** 00 to 59 **Second:** 00 to 59

5.2 Advanced

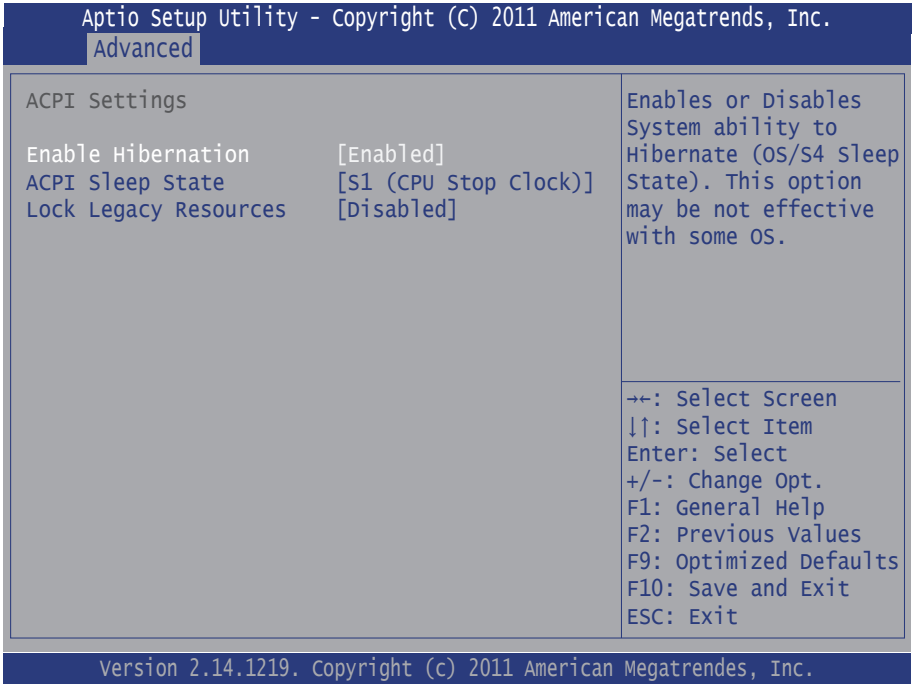
Access the **Advanced** menu to manage the computer's system configuration including the Super IO chip.



Setting	Description
Launch PXE OpROM	**Enable** / **Disable** (default) Boot Option for Legacy Network Devices.
ACPI Settings	See Section 5.2.1 ACPI Settings on page 45
S5 RTC Wake Settings	See Section 5.2.2 S5 RTC Wake Settings on page 46
CPU Configuration	See Section 5.2.3 CPU Configuration on page 47
IDE Configuration	See Section 5.2.4 IDE Configuration on page 48

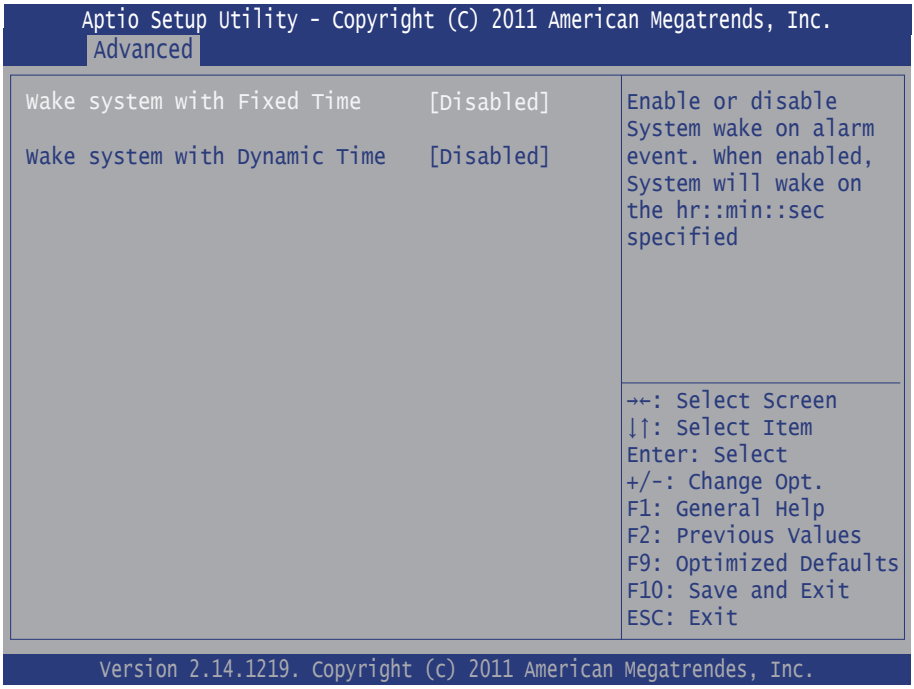
USB Configuration	See Section 5.2.5 USB Configuration on page 49
Super IO Configuration	See Section 5.2.6 Super IO Configuration on page 50
H/W Monitor	See Section 5.2.7 H/W Monitor on page 52

5.2.1 ACPI Settings



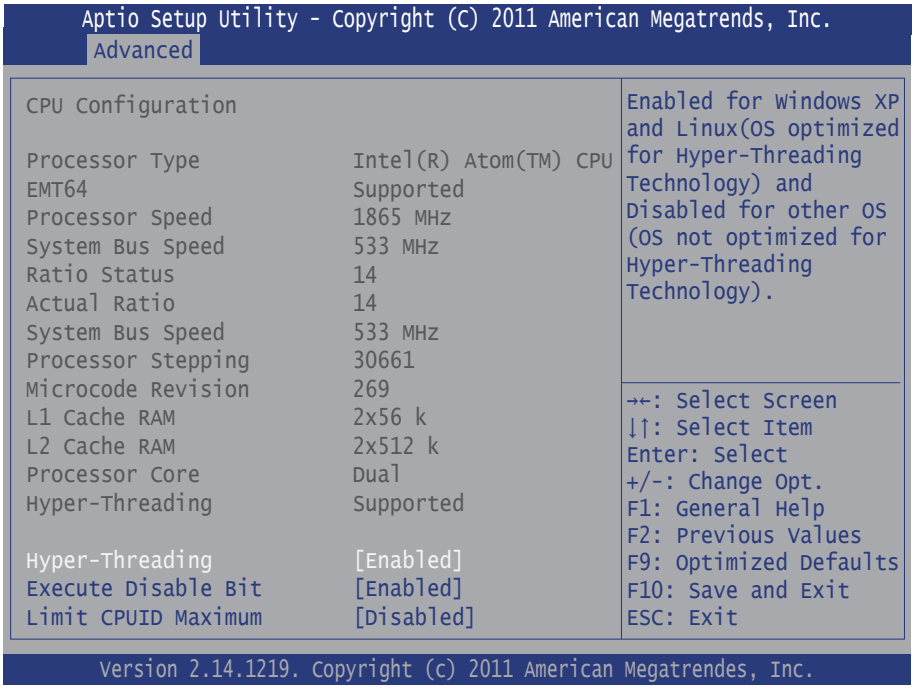
Setting	Description
Enable Hibernation	**Enables** (default) or **Disables** System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed. ► Options: **Suspend Disabled**, **S1 (CPU Stop Clock)** (default)
Lock Legacy Resources	**Enables** or **Disables** (default) Lock of Legacy Resources.

5.2.2 S5 RTC Wake Settings



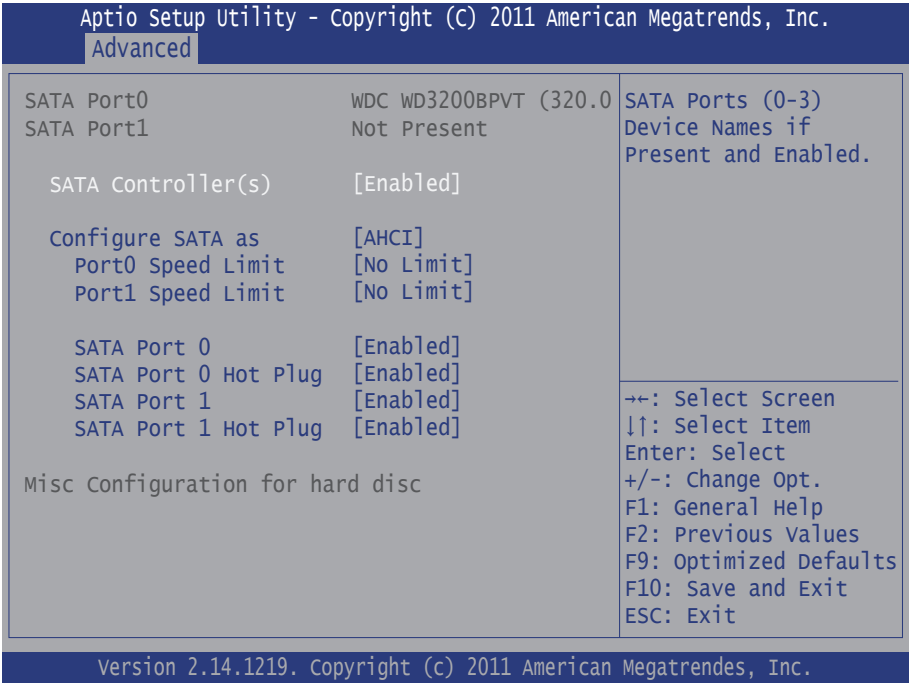
Setting	Description
Wake system with Fixed Time	**Enable** or **Disable** (default) System wake on alarm event. When enabled, System will wake on the hr::min::sec specified.
Wake system with Dynamic Time	**Enable** or **Disable** (default) System wake on alarm event. When enabled, System will wake on the current time + Increase minute(s).

5.2.3 CPU Configuration



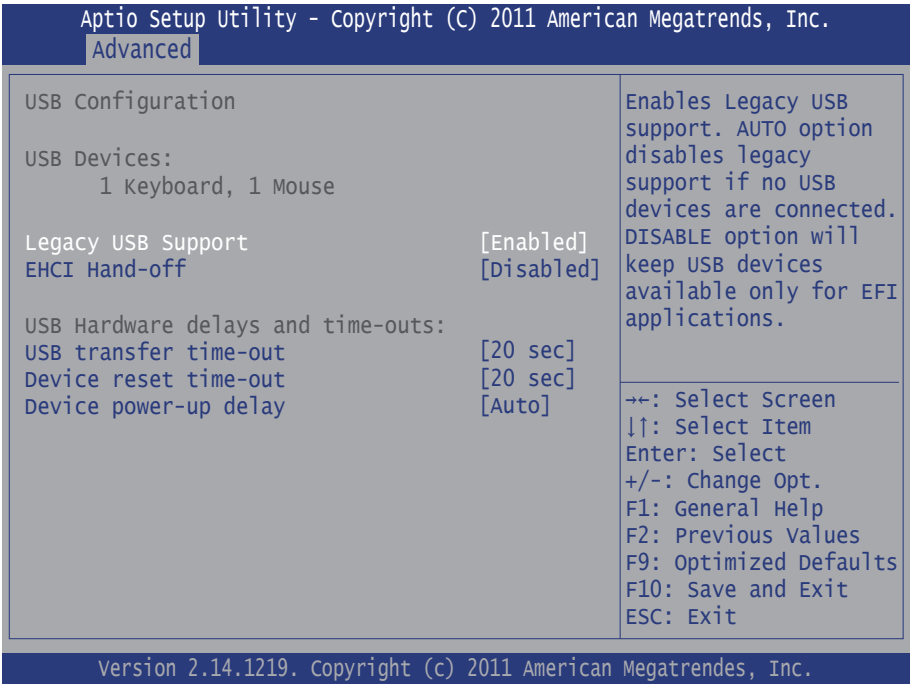
Setting	Description
Hyper-threading	**Enabled** (default) for Windows XP and Linux (OS optimized for Hyper-threading Technology) and **Disabled** for other OS (OS not optimized for Hyper-threading Technology).
Execute Disable Bit	XP can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.) ► Options: **Enabled** (default) and **Disabled**.
Limit CPUID Maximum	Disabled for Windows XP ► Options: **Enabled** and **Disabled** (default).

5.2.4 IDE Configuration



Setting	Description
SATA Controller(s)	SATA Ports (0-3) Device Names if Present and Enabled. ► Options: **Enabled** (default) and **Disabled**.
Configure SATA as	Select a configuration for SATA Controller. ► Options: **IDE** and **AHCI** (default).
Port0/1 Speed Limit	Select Port0/1 AHCI Speed Limit. ► Options: **No Limit** (default), **GEN1 Rate**, **GEN2 Rate**
SATA Port 0/1	**Enable** (default) or **Disable** SATA Port.
SATA Port 0/1 Hot Plug	Designates this port as Hot Pluggable. ► Options: **Enabled** (default) and **Disabled**

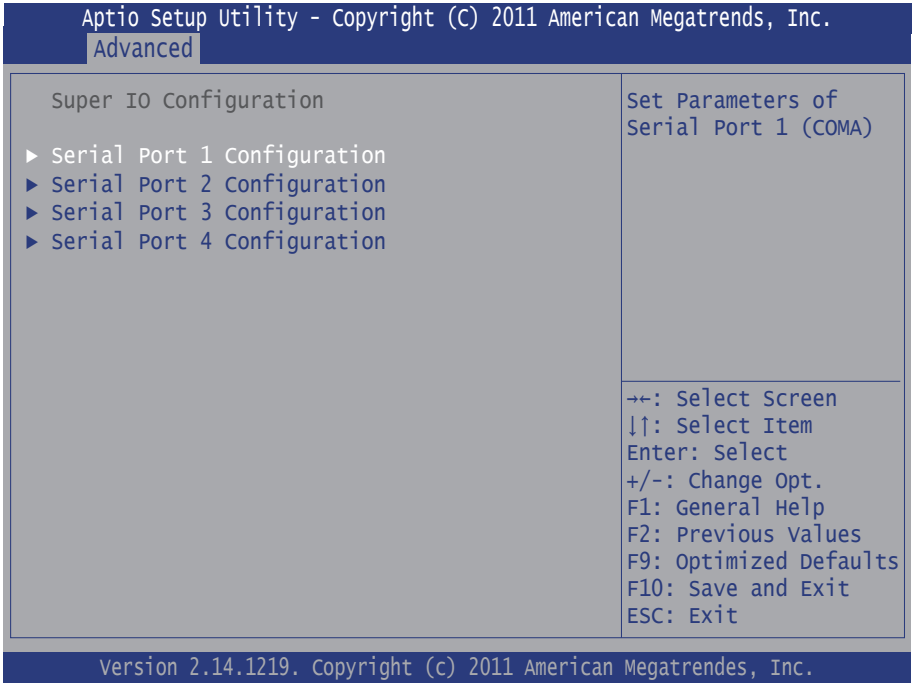
5.2.5 USB Configuration



Setting	Description
Legacy USB Support	**Enables** (default) Legacy USB support. **AUTO** option disables legacy support if no USB devices are connected. **DISABLE** option will keep USB devices available only for EFI applications.
EHCI Hand-off	This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver. ► Options: **Enabled** and **Disabled** (default).
USB hardware delays and time-outs:	
USB transfer time-out	The time-out value for Control, Bulk and Interrupt transfers. ► Options: **1**/**5**/**10**/**20 sec** (default)

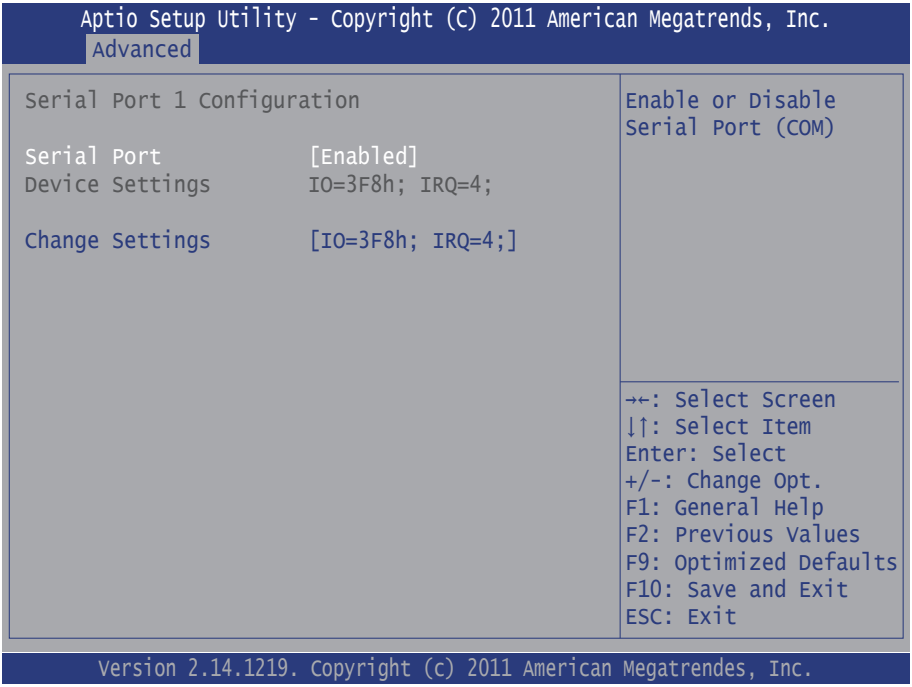
Device reset time-out	USB mass storage device Start Unit command time-out. ► Options: **10**/**20** (default)/**30**/**40 sec**
Device power-up delay	Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor. ► Options: **Auto** (default), **Manual**

5.2.6 Super IO Configuration



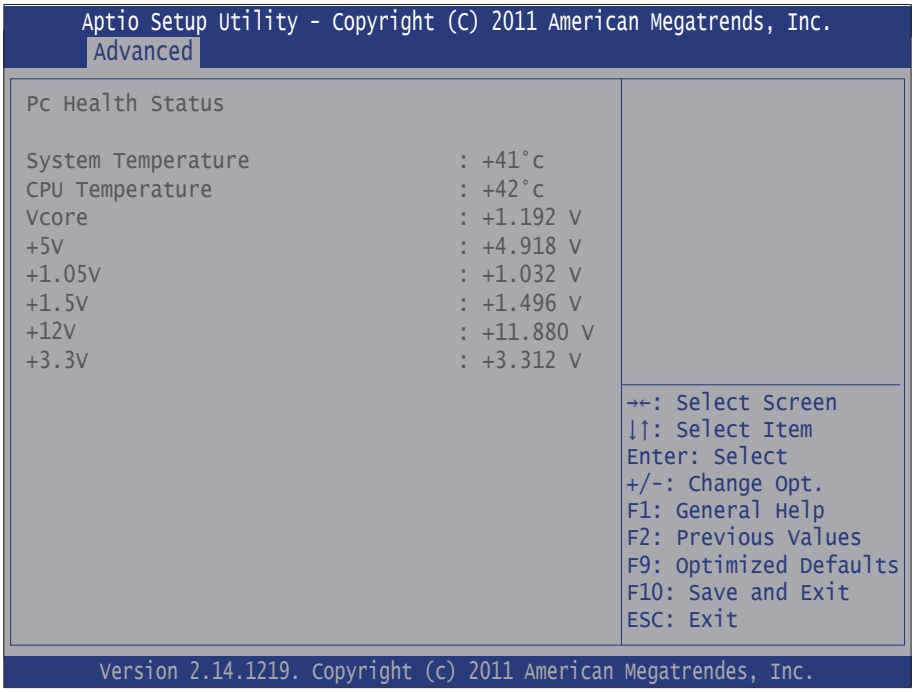
Setting	Description
Serial Port 1~4 Configuration	See next page.

Serial Port 1~4 Configuration

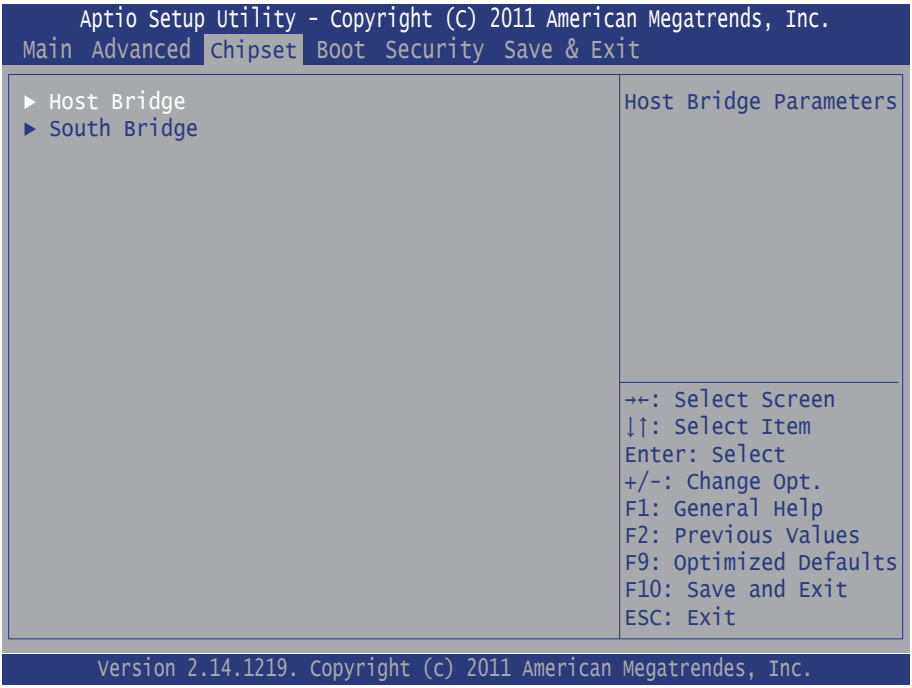


Setting	Description
Serial Port	**Enable** (default) or **Disable** Serial Port (COM)
Change Settings	Select an optimal setting for Super IO device. ► Options: **IO=3F8h; IRQ=4;** (default for Serial Port 1) **IO=2F8h; IRQ=3;** (default for Serial Port 2) **IO=3E8h; IRQ=10;** (default for Serial Port 3) **IO=2E8h; IRQ=11;** (default for Serial Port 4)

5.2.7 H/W Monitor

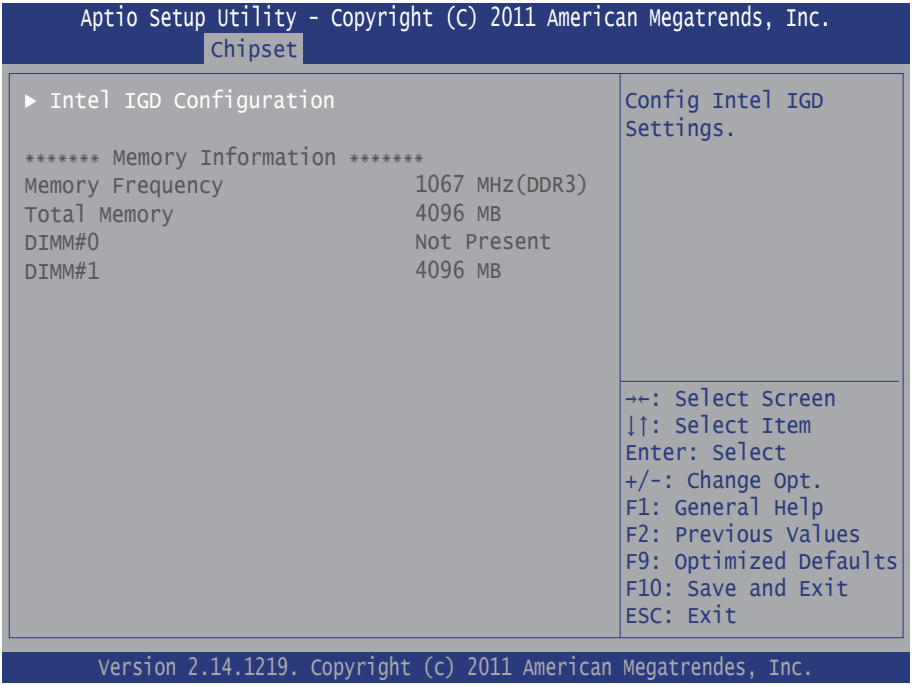


5.3 Chipset



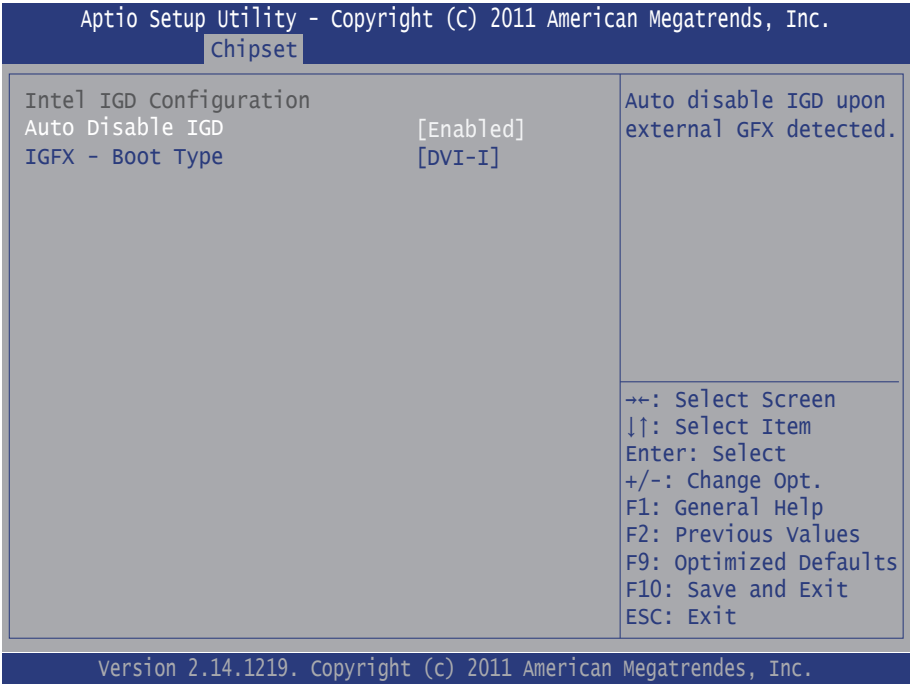
Setting	Description
Host Bridge	See Section 5.3.1 Host Bridge on page 54
South Bridge	See Section 5.3.2 South Bridge on page 56

5.3.1 Host Bridge



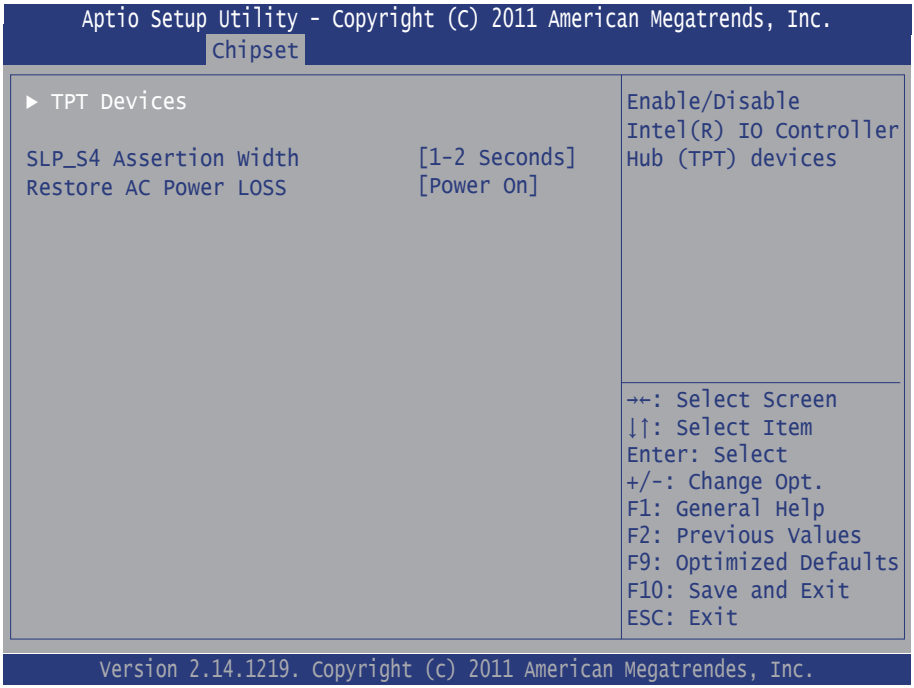
Setting	Description
Intel IGD Configuration	See next page.

Intel IGD Configuration



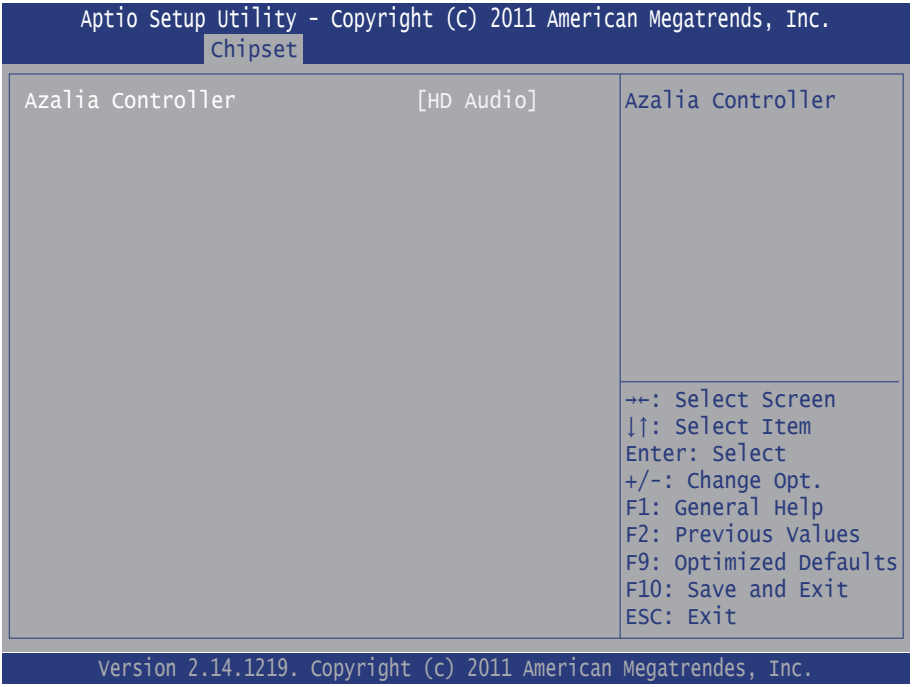
Setting	Description
Auto Disable IGD	Auto disable IGD upon external GFX detected. ► Options: **Enabled** (default) and **Disabled**.
IGFX - Boot Type	Select the Video Device which will be activated during POST. This has no effect if external graphic present. ► Options: **DVI-I** (default) and **DVI-D**.

5.3.2 South Bridge



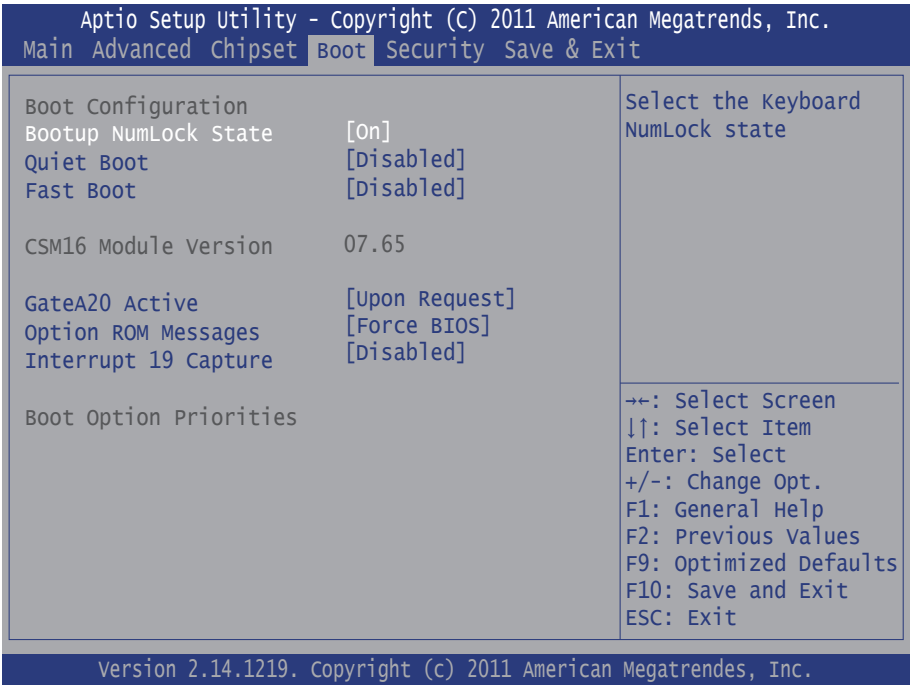
Setting	Description
TPT Devices	See next page.
SLP_S4 Assertion Width	Select a minimum assertion width of the SLP_S4# signal ► Options: **1-2** (default)/**2-3**/**3-4**/**4-5 Seconds**
Restore AC Power LOSS	Select AC power state when power is re-applied after a power failure. ► Options: **Power Off** and **Power On** (default).

TPT Devices



Setting	Description
Azalia Controller	► Options: **Disabled** and **HD Audio** (default).

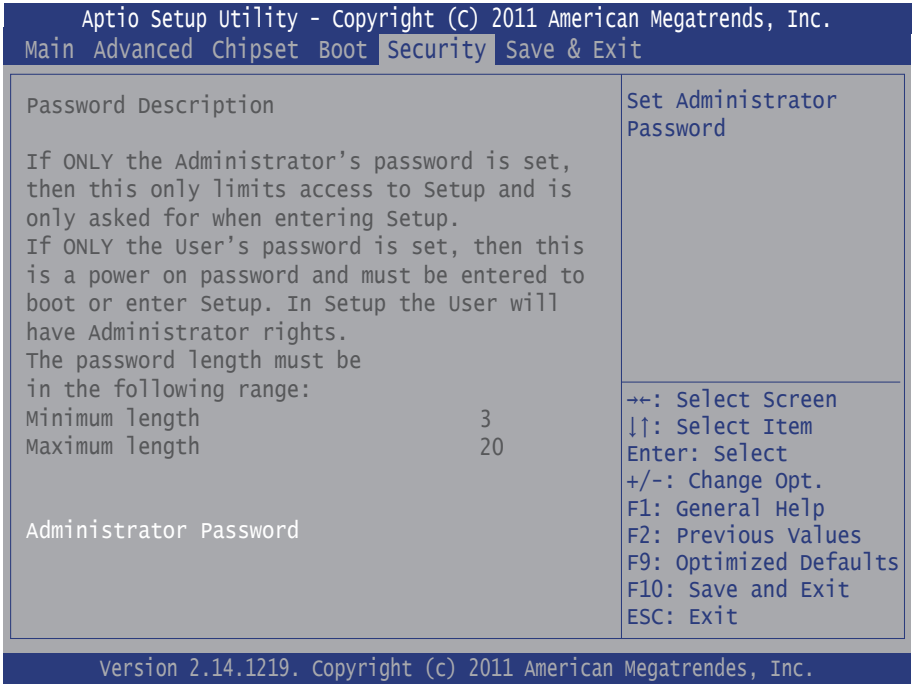
5.4 Boot



Setting	Description
Bootup NumLock State	Select the keyboard NumLock state. ► Options: **On** (default) and **Off**.
Quiet Boot	**Enables** or **disables** (default) Quiet Boot option.
Fast Boot	**Enables** or **disables** (default) boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.
GateA20 Active	**UPON REQUEST** (default) - GA20 can be disabled using BIOS services. **ALWAYS** - do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.
Option ROM Messages	Set display mode for Option ROM ► Options: **Force BIOS** (default) and **Keep Current**.
Interrupt 19 Capture	Enabled: Allows Option ROMs to trap Int 19 ► Options: **Enabled** and **Disabled** (default)

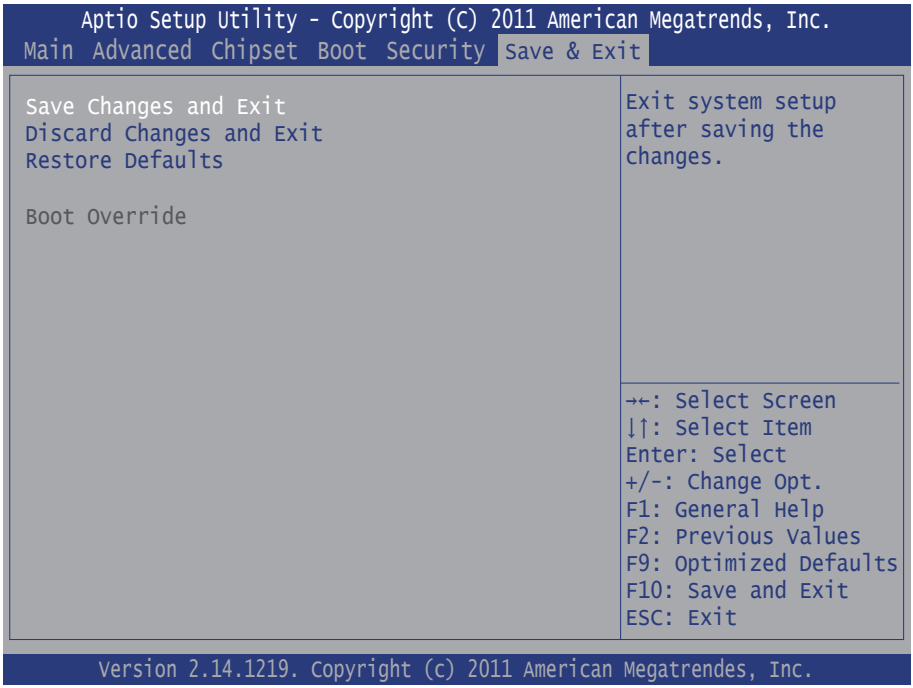
5.5 Security

The **Security** menu sets up the administrator password. Once an administrator password is set up, this BIOS SETUP utility is limited to access and will ask for the password each time any access is attempted.



Setting	Description
Administrator Password	To set up an administrator password: 1. Select **Administrator Password**. The screen then pops up an **Create New Password** dialog. 2. Enter your desired password that is no less than 3 characters and no more than 20 characters. 3. Hit [Enter] key to submit.

5.6 Save & Exit



Setting	Description
Save Changes and Exit	Exit system setup after saving the changes. ► Enter the item and then a dialog box pops up: **Save configuration and exit?**
Discard Changes and Exit	Exit system setup without saving the changes. ► Enter the item and then a dialog box pops up: **Quit without saving?**
Restore Defaults	Restore/Load Default values for all the setup options. ► Enter the item and then a dialog box pops up: **Load Optimized Defaults?**
Boot Override	**Boot Override** presents a list of boot devices on screen. Select the device to boot up the system regardless of the currently configured boot priority.

Appendix

Appendix A: Watchdog Timer (WDT) Setting

WDT is widely applied to industry computers to monitor activities of CPU. The programmed application triggers WDT with adequate timer setting depending on its requirement. Before WDT counts down to zero, the functional system will reset the counter. In case the WDT counter is not reset by an abnormal system, it will counts down to zero and then reset the system automatically.

This computer supports the watchdog timer up to 255 levels for users for software programming. Below please take the source code written in C for a WDT application example.

```
/*-----  Include Header Area -----*/
#include "math.h"
#include "stdio.h"
#include "dos.h"

#define SIO_INDEX       0x2E                /* or index = 0x4E */
#define SIO_DATA        0x2F                /* or data  = 0x4F */

/*-----  routing, sub-routing -----*/
void main()
{
         outportb(SIO_INDEX, 0x87);              /* SIO - Enable */
         outportb(SIO_INDEX, 0x87);

    outportb(SIO_INDEX, 0x07);               /* LDN - WDT */
    outportb(SIO_DATA,  0x07);

    outportb(SIO_INDEX, 0x30);               /* WDT - Enable */
    outportb(SIO_DATA,  0x01);

    outportb(SIO_INDEX, 0xF0);               /* WDOUT - Enable */
    outportb(SIO_DATA,  0x80);

    outportb(SIO_INDEX, 0xF5);               /* WDT - Configuration */
    outportb(SIO_DATA,  0x72);

    outportb(SIO_INDEX, 0xF6);               /* WDT - Timeout Value : 5sec */
    outportb(SIO_DATA,  0x05);

         outportb(SIO_INDEX, 0xAA);              /* SIO - Disable */
}
```

Appendix B: Digital I/O Setting

Below are the source codes written in C, please take them for Digital I/O application examples. The default I/O address is 6Eh.

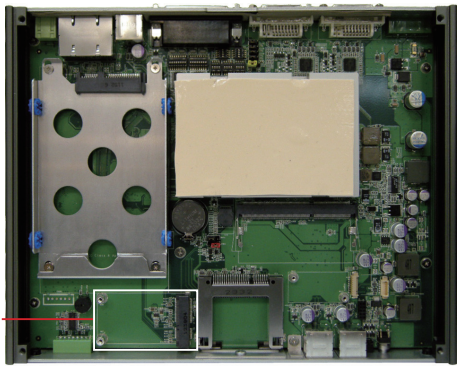
```
/*-----  Include Header Area -----*/
#include "math.h"
#include "stdio.h"
#include "dos.h"

#define   DELAY_TIME                          10

int SMB_PORT_AD    = 0xF000;
int SMB_DEVICE_ADD = 0x6e;                                  /*  75111R's  Add=6eh
*/

unsigned char DIO_Set(unsigned char oMode, unsigned char oData);
unsigned char SMB_Byte_READ(int SMPORT, int DeviceID, int iREG_INDEX);
void SMB_Byte_WRITE(int SMPORT, int DeviceID, int oREG_INDEX, int oREG_DATA);

/*-----  routing, sub-routing -----*/
void main()
{
         DIO_Set(0xFF,0xFF);
         delay(2000);

         DIO_Set(0xFF,0x00);
         delay(2000);

         DIO_Set(0xFF,0x55);
         delay(2000);

         DIO_Set(0xFF,0xAA);
         delay(2000);

}

unsigned char DIO_Set(unsigned char oMode, unsigned char oData)
{
         unsigned char bData;

    /* GPIO10~17 pin control */
         SMB_Byte_WRITE(SMB_PORT_AD,SMB_DEVICE_ADD,0x10,oMode);
    delay(DELAY_TIME);

    /* GPIO10~17 pin Data */
         SMB_Byte_WRITE(SMB_PORT_AD,SMB_DEVICE_ADD,0x11,oData);
    delay(DELAY_TIME);

         /* GPIO10~17 pin Status */
         bData = SMB_Byte_READ(SMB_PORT_AD,SMB_DEVICE_ADD,0x12);

    return bData;
}

unsigned char SMB_Byte_READ(int SMPORT, int DeviceID, int iREG_INDEX)
{
```

```
        unsigned char iData;
        unsigned char iFlag;
        int iError = 0;

        do
        {
                outportb(SMPORT+00, 0x1E);
                iFlag = inportb(SMPORT+00);
                if( iError++ > 0x8000 )    return 2;
        }
        while( ( iFlag & 0x9F ) != 0 );

        outportb(SMPORT+04, DeviceID+1);
        outportb(SMPORT+03, iREG_INDEX);
        outportb(SMPORT+02, 0x48);

        iError = 0;
        do
        {
                if( iError++ > 0x8000)
        return 2;
                if( ( inportb(SMPORT+0x00) & 0x06 ) == 0x06 )        return 1;
        }
        while( (inportb(SMPORT+0x00) & 0x06 ) != 0x02 );

        iData = inportb(SMPORT+05);

        return iData;
}

void SMB_Byte_WRITE(int SMPORT, int DeviceID, int oREG_INDEX, int oREG_DATA)
{
        unsigned char iFlag;
        int iError = 0;

        do
        {
                outportb(SMPORT+00, 0x1E);
                iFlag = inportb(SMPORT+00);
                if( iError++ > 0x8000 )    return;
        }
        while( ( iFlag & 0x9F ) != 0 );

        outportb(SMPORT+04, DeviceID);
        outportb(SMPORT+03, oREG_INDEX);
        outportb(SMPORT+05, oREG_DATA);
        outportb(SMPORT+02, 0x48);

        iError = 0;
        do
        {
                iError++;
                if( iError > 0x8000)
        return;
                if( ( inportb(SMPORT+0x00) & 0x06 ) == 0x06 )        return;
        }
        while( (inportb(SMPORT+0x00) & 0x06 ) != 0x02 );
}
```

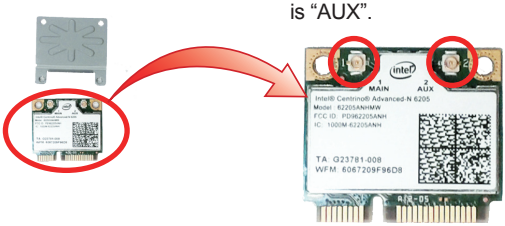
Appendix C: HSUPA or WiFi Module Hardware Installation

To be able to network with 3G, hardware-wise the computer needs the HSUPA module **HSPA-SI1400** installed and a SIM card inserted (as described in Section 4.1.5 Install SIM or CFast Card on page 31). To use WiFi connection, the WiFi module **HIFI-IN1300** should be installed instead. This section will guide you through hardware installation, and see next section for software and application installation.

1. Remove the computer's top cover as described in Section 4.1.1 Remove Top Cover on page 28. Find the Mini-card socket for WiFi or 3G module on the board.



2. Execute this extra step for WiFi module. Prepare the **WIFI-IN1300** WiFi module kit. The module is a half-size module of **PCI Express Mini-card** form factor, with two U.FL connectors, one is "MAIN", and the other is "AUX".



Two U.FL connectors, one is "MAIN", the other is "AUX".

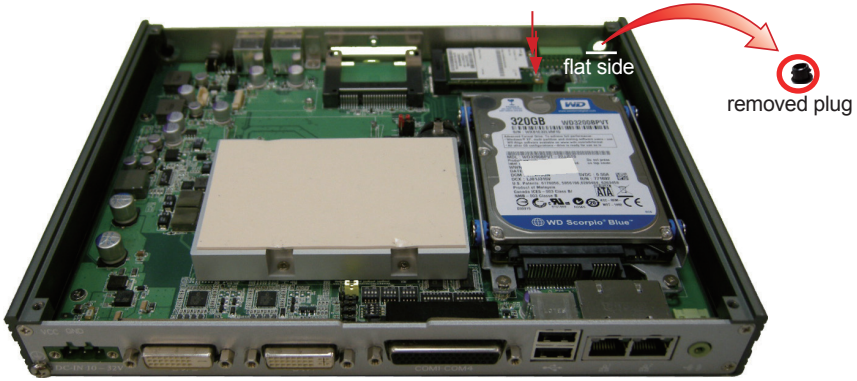
In order to make the half-size WiFi module compatible with the **Mini-card** socket, extend the WiFi module with a "mini half bracket". Join them together by using two screws.

Position the WiFi module and the "mini half bracket" exactly as shown.

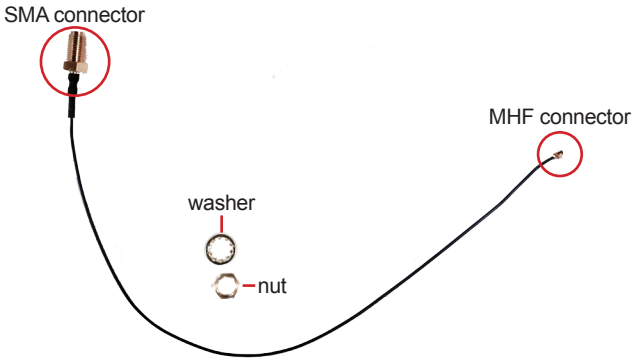
Join the WiFi module and the "mini half bracket" by two screws.

3. Plug WiFi or HSUPA card to the socket's connector by a slanted angle. Fully plug the module. Note the notch on the wireless module should meet the break of the connector.

4. Press down the module and fix the module in place using two screws. Remove the plastic plug from the computer's front panel to create an antenna hole. Keep the plastic plug for possible restoration in the future.

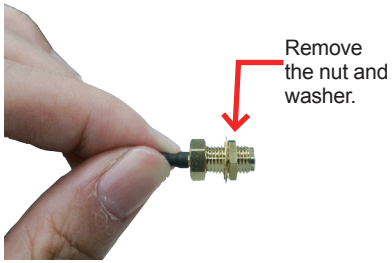


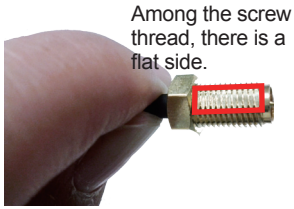
5. Prepare RF cable, washer, nut included in WiFi or HSUPA module. The cable has an SMA connector on one end and an MHF connector on the other.



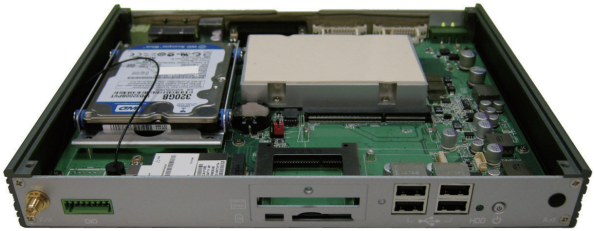
6. Connect RF cable's MHF connector to the WiFi module's "MAIN" connector.

7. Remove the washer and the nut from the other end of the RF cable, which is an SMA connector. Save the washer and nut for later use. Note the SMA connector has the form of a threaded bolt, with one flat side.

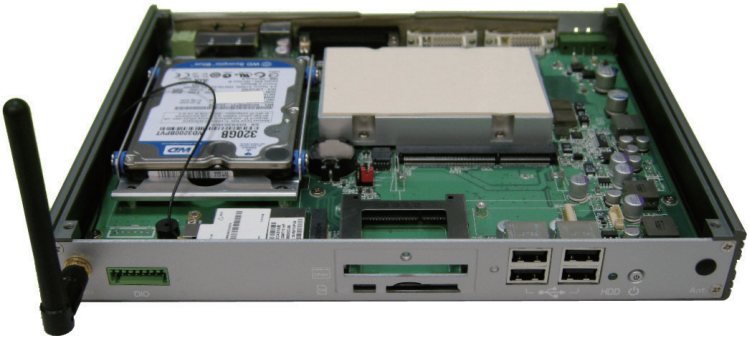




8. Push the SMA connector through the above mentioned antenna hole. Note to meet the aforesaid flat side with the antenna hole's flat side at the bottom. Mount the washer first and then the nut to the SMA connector. Make sure the nut is tightened.



10. Have an external antenna. Screw and tightly fasten the antenna to the SMA connector. Swivel the antenna to an angle of best signals.



Appendix D: HSUPA or WiFi Module Software & Application Installation

This section will guide you to install HSUPA & WiFi modules' drivers and application programs. To have a copy of the device driver, contact ARBOR customer service by the contact info described in Technical Support on page vi.

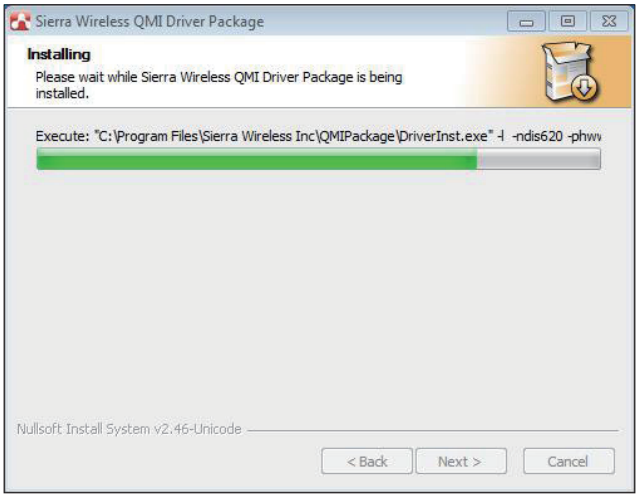
D.1 HSUPA Module

To install the driver for the 3G module **HSPA-SI1400**:

1. Run the executable file **SWIQMISetup.exe**.

   The installer then opens. Click the **Next** button to proceed.

2. The driver installation then starts, progresses and finishes.

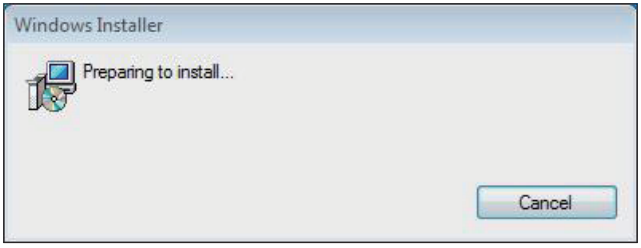


3. Click the **Finish** button to quit the driver installation.

Except device driver, you also need application program to use 3G function. You may install your own application, or request an application program from ARBOR customer service.

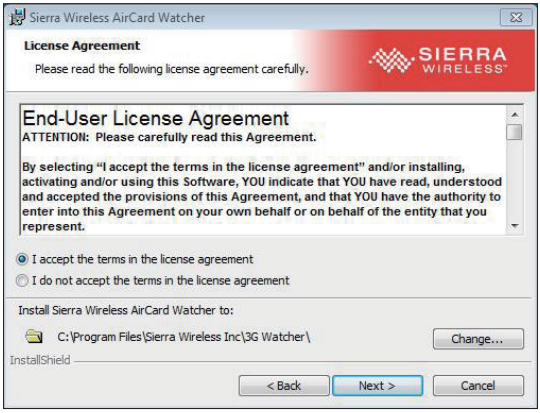
1. Run the Windows Installer file **Watcher_Generic.msi**.

   The installer opens and prepares to install.

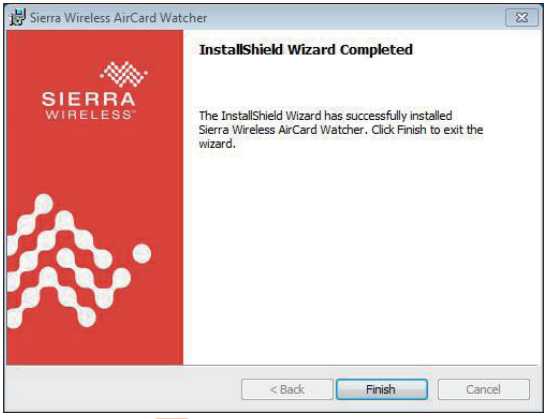


2. Once the preparation finishes, the installer prompts to install **Sierra Wireless AirCard Watcher** on the computer. Click the **Next** button to proceed.

3. The installer then prompts the license agreement. Select **I accept the terms in the license agreement**. Click the **Change...** button to browse for an alternate folder to install the application program to, or simply click the **Next** button to install the application program to the suggested folder.



4. The installation then starts, progresses and finishes. Click the **Finish** button to quit the installation.



5. An **AirCard Watcher** icon then shows up on the desktop.

6. Double-click the **AirCard Watcher** icon to launch the application program.

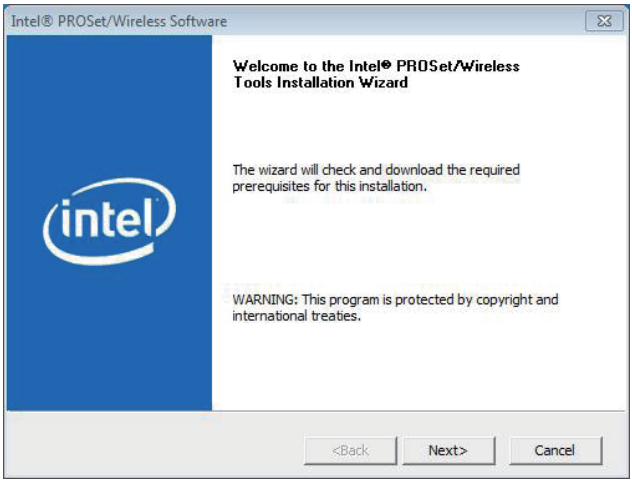
The **AirCard Watcher** opens.

7. See the document of the **AirCard Watcher** by clicking question mark to know how to use the application program.

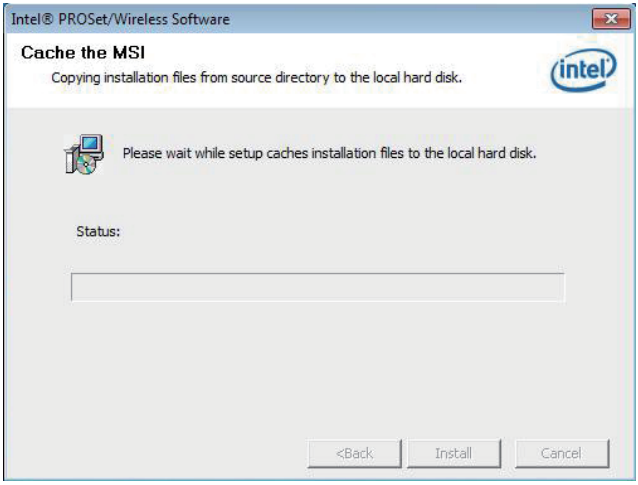
D.2 WiFi Module

1. Request a copy of the device driver from ARBOR customer service. Run the executable file of the device driver, for example **Advanced-N 6205 WinXP_14.2.0.10_x32.exe**.

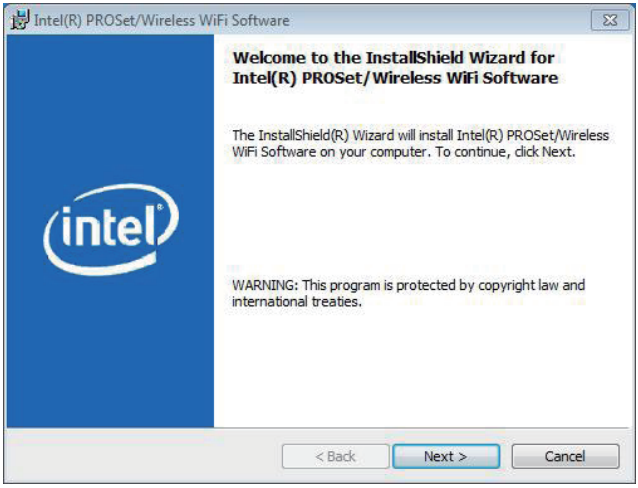
The installer then opens. Click the **Next** butoon to proceed.



2. The installer then starts to prepare for the setup.

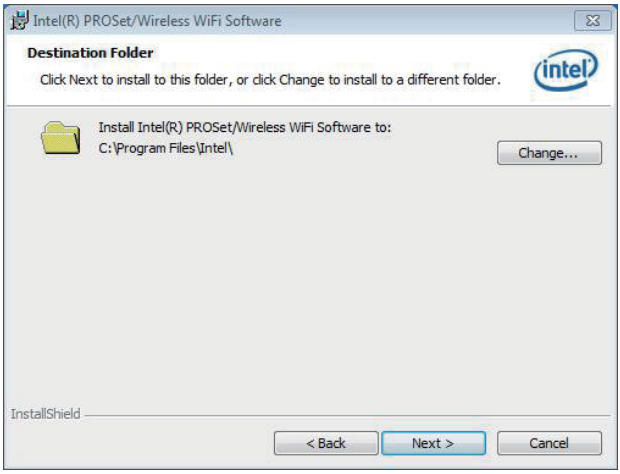


3. When the preparation finishes, the installer prompts to install **Intel(R) PROSet/Wireless WiFi Softwar**e on the computer. Click the **Next** button to proceed.

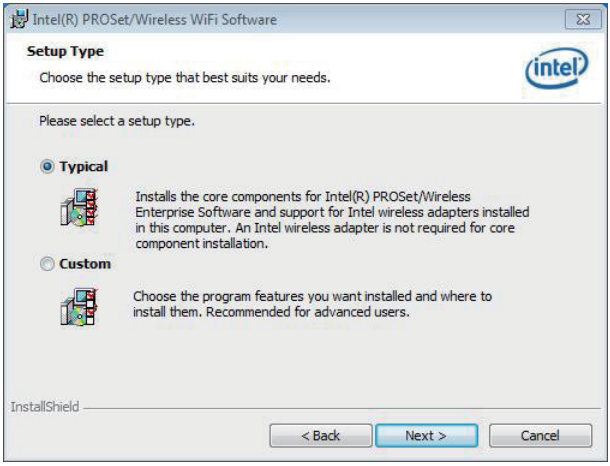


4. The installer then prompts the license agreement. Select **I accept the terms in the license agreement** and click the **Next** button to proceed.

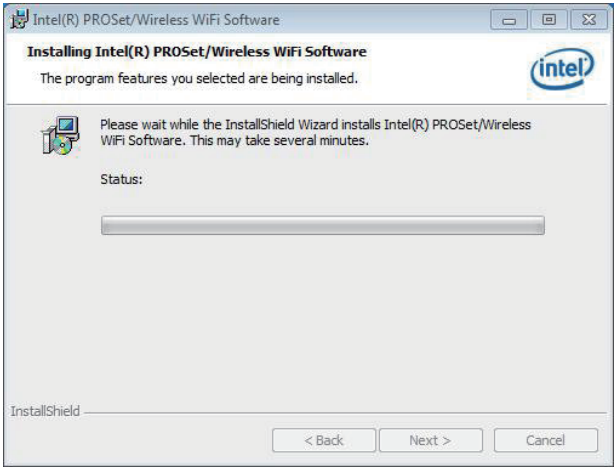
5. The installer then asks where to install the software. Click the **Change**... button to browse for an alternate folder to install the software to, or simply click the **Next** button to install the software to the suggested folder.



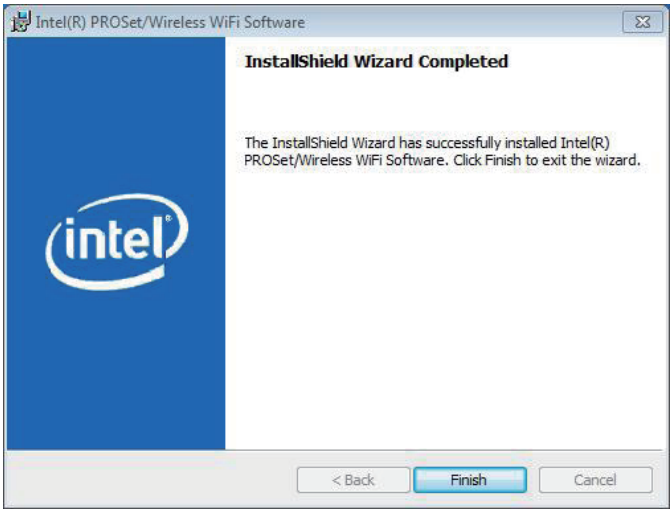
6. The installer then opens a **Setup Type** selection. Select **Typical** to install both the driver and the application program (recommended) or select **Custom** to choose the features to install. Then click the **Next** button to proceed.



7. The software installation then starts, progresses and finishes.



8. Click the **Finish** button to quit the software installation.



9. The computer's WiFi feature is ready-to-use, see the document of the application program to know how to connect the computer to a WiFi hotspot.